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ONTARIO GEOLOGICAL SURVEY

Open File Report 6051

Report of Activities, 2000
Resident Geologist Program

Kirkland Lake Regional Resident Geologist Report:
Kirkland Lake and Sudbury Districts

by

G. Meyer, M. Cosec, G.P.B. Grabowski, D.L. Guindon, M. Hailstone, C. Stephenson, L.M. Wallace, R. Debicki and G. Yule

2001

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Meyer, G., Cosec, M., Grabowski, G.P.B., Guindon, D.L., Hailstone, M., Stephenson, C., Wallace, L.M., Debicki, R. and Yule, G. 2001. Report of Activities 2000, Resident Geologist Program, Kirkland Lake Regional Resident Geologist Report: Kirkland Lake and Sudbury Districts; Ontario Geological Survey, Open File Report 6051, 113p.

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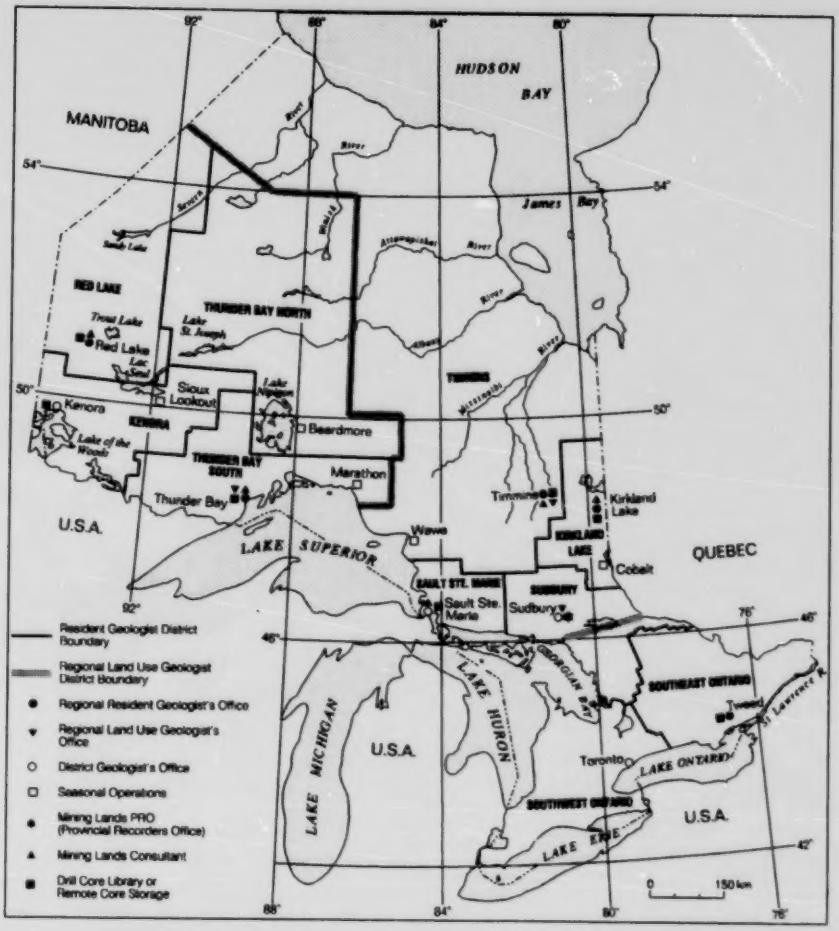

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Ontario Geological Survey

Resident Geologist Program

Report of Activities – 2000

KIRKLAND LAKE
REGIONAL RESIDENT GEOLOGIST REPORT

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Kirkland Lake Regional Resident Geologist (Kirkland Lake District)-2000

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2001

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KIRKLAND LAKE REGIONAL RESIDENT GEOLOGIST (KIRKLAND LAKE DISTRICT)—2000

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INTRODUCTION

The price of gold in 2000 ranged between a low of US$262.85 per ounce and a high of US$312.70 per ounce, averaging approximately US$280.00 per ounce. A number of factors, including low gold prices, lack of investment, uncertainties regarding land use (Ontario Living Legacy) and the elimination of the OPAP program contributed to significantly reduce exploration activity in the Kirkland Lake Resident Geologist's district. As new government tax incentives are introduced, the level of exploration activities in this area should begin to turn in a more positive direction.

Total gold production in 2000 from all producers in the Kirkland Lake Regional Resident Geologist district (see Mining & Milling Activity – Precious Metals in this report and Tables 2 and 9), was 252 520 ounces of gold. This represents a decrease of 17% from 1999. Total historic gold production in the district was 40 810 497 ounces of gold recovered from 134 449 781 tons of ore plus 192 501 ounces of gold from 4 168 925 tons of tailings.

Four gold mines operated proximal to the Porcupine-Destor Deformation Zone in the Kirkland Lake Regional Resident Geologist's district during 2000. These included; the Holloway Mine, owned by Battle Mountain Gold Company and Teddy Bear Valley Mines Limited; the Holt-McDermott Mine, owned by Barrick Gold Corporation, the Glimmer Mine, owned by Exall Resources Limited and Glimmer Resources Incorporated and the Hislop Mine, owned by St Andrew Goldfields Limited. Open pit ore reserves were depleted at the Hislop Mine and St Andrew shut down this operation along with mining and milling at the Stock Mine. Mining and milling operations in the Kirkland Lake Resident Geologist District directly employ close to 500 people.

Extender Minerals of Canada Ltd. operated two underground barite-mining operations.

In 2000, there were 98 active exploration projects in the Kirkland Lake Regional Resident Geologist district (Tables 3 & 4), including work done by Battle Mountain Gold Company, Goldeye Explorations Limited, KRL Resources Corporation, NovaWest Resources Incorporated, Pelangio Mines Incorporated, Queenston Mining Incorporated/Franco-Nevada Mining Corporation and Temex Resources Corporation.

In the Larder Lake Mining Division, there were 22 433 active claim units (see Table 1) and a total of $4 532 745 of exploration expenditures was approved for assessment credits in the Kirkland Lake Regional Resident Geologist's district. A total of 233 Assessment Work reports and 45 OPAP (1998 and 1999 programs) reports were processed and incorporated into the Assessment File system (Table 3) and 253 records of publications were added to the library database (Table 6).

MINING & MILLING ACTIVITY – PRECIOUS METALS

Barrick Gold Corporation – Holt-McDermott Mine

In 2000, Barrick Gold Corporation's Holt-McDermott Mine in Holloway Township mined and milled 486 496 t (536 271tons) to produce 90 712 ounces of gold. The recovered grade was 0.169 ounce Au per ton at a mill recovery rate of 95.7%. Production cost per ounce of gold was US$147.00. Ore reserves at the end of December 31, 2000 in the proven category were 327 348 t (360 839 tons) grading 6.31 g/t Au or containing 66 409 ounces of gold and in the probable category 1 566 784 t (1 727 084 tons) grading 6.75 g/t Au or containing 340 019 ounces of gold. The combined ore reserves in the proven and probable categories were 1 894 132 t (2 087 923 tons) grading 6.674 g/t Au or containing 406 429 ounces of gold. In addition, indicated resources were 903 894 t (996 373 tons) grading 7.173 g/t Au or containing 208 453 ounces of gold.

Drifting on production levels at 925 m and 1075 m advanced 1320 m and 1167 m, respectively. The drifts have been advanced along strike with the C-104 zone to permit definition diamond drilling. The drilling is about 70% completed. The company completed 5790 m of surface exploration diamond drilling in 8 holes and two extensions, 3833 m of underground exploration diamond drilling in 19 holes and 25 517 m of definition diamond drilling in about 250 drill holes.

Capital expenditures in 2000 were $10.2 million. A second ball mill and a third grinding circuit were added to the mill to facilitate an increased capacity for custom milling Battle Mountain Gold Company's Holloway Mine ore and increase gold recovery.

Approximately $20 000 was spent in 2000 on down-hole IP and some follow-up IP targets were identified. The scope of this work has not been finalized and further surface diamond drilling may be required to test potential targets.

In 2001, Barrick plans a program of underground exploration diamond drilling from the 1075 m level to test the extension of the C-104 zone below the level. Underground diamond drilling is also planned from the 775 m level to test the western extension and depth potential of the C-97 zone.

At end of 2000 the company employed 184 people. (Craig Todd, Barrick Gold Corporation, personal communication, 2001and www.barrick.com).

Battle Mountain Gold Company and Teddy Bear Valley Mines Limited – Holloway Mine

Battle Mountain Gold Company's and Teddy Bear Valley Mines Limited's Holloway Mine in Holloway Township, mined 530 865 t (585 178 tons) of ore. Of this ore, 489 568 t (539 656 tons) were milled to produce 101 353 ounces of gold at a recovered grade of 0.188 ounce per ton. The ore was custom milled at the following two area mills: Barrick Gold Corporation's Holt-McDermott mill, where 435 170 t of ore produced 90 068 ounces of gold at a recovery of 94.71%, and St Andrew Goldfields Ltd.'s Stock mill, where 54 398 t of ore produced 11 285 ounces of gold at a recovery of 93.58%. Cash cost per ounce of gold was US$205 and the total cost per ounce was US$301. Stockpiled ore, of 41 297 t, is anticipated to contain 8565 ounces of recoverable gold.

Proven ore reserves at the mine on December 31, 2000 were 1.88 million t (2 072 345 tons) grading 6.8 g/t Au or containing 411 015 ounces of gold. Probable resources were 2.1 million t (2 314 854 tons)

grading 6.62 g/t Au or containing 446 959 ounces of gold. Total reserves and resources were 3.98 million t (4 387 199 tons) grading 6.7 g/t Au or containing 857 974 ounces of gold.

During 2000, the joint venture partners completed 5441 m of drifting and 164 m of raises. Underground exploration drilling, totaled 21 032 m and underground definition drilling 21 137 m in 421 holes. In addition 4911 m of surface diamond drilling was completed.

Battle Mountain Gold Co. (BMG) signed a new custom milling agreement, for its Holloway Mine with the nearby Holt-McDermott mill owned by Barrick Gold Corporation. This agreement includes an expansion of the Holt-McDermott mill, which will provide sufficient capacity to handle all of Holloway Mine's annual production, compared with about 85 percent presently. Under the new agreement, milling costs for both Holloway and Holt-McDermott mines are expected to decline. Battle Mountain expects to realize savings of about $15 per ounce. The new accord provides an opportunity for possible future increases in throughput of up to 10 percent, while maintaining a competitive milling cost. Such an increase would also be expected to benefit the future conversion of resources to reserves at the Holloway Mine. In addition, the agreement allows Battle Mountain Gold the option to purchase the Holt-McDermott mill at a predetermined price after Barrick completes processing its own ore. Battle Mountain has also negotiated a right of first refusal for any excess capacity in the mill under the accord, should it become available.

Capital expenditures for the year amounted to $7.77 million including $4.0 million for mill and tailings expansions at Barrick Gold Corporation's Holt-McDermott Mine.

A program of development and drilling costing $2.4 million has been proposed for 2001.

At the end of December 2000, consecutive days without lost-time to accidents stood at 1614.

At year-end, the companies employed 142 people (http://www.bmgold.com, Battle Mountain Gold, Press Release, April 25, 2000 and R.J. Labine, Battle Mountain Gold, personal communication, 2001).

Canmine Resources Corporation

Canmine Resources is retrofitting the former Cobatec refinery with start-up expected in the summer 2001, creating about 30 jobs. Total cost of upgrading the facility is $5.3 million.

The refinery, which was acquired by Canmine in 1999 for $6.1 million, is a $30 million facility for producing cobalt and nickel compounds and other precious metals. The company has its own source of cobalt at the Werner Lake cobalt project in northwestern Ontario and nickel at Maskwa nickel project in Manitoba. These sources are not immediately available and the company has secured cobalt and silver rich residues from Agnico-Eagle, which are 3km from the plant (www.canmine.com and Northern Daily News, January 10, 2001, p 5).

Exall Resources Limited and Glimmer Resources Inc. – Glimmer Mine

The Glimmer Mine, operated by Exall Resources Limited, is located 8 km east of Matheson in Hislop Township. Commercial production commenced on New Years Day 1998. In 2000, the company had 255 760 t (281 927 tons) of ore milled at Kinross Gold Corporation's Macassa mill to produce 46 828 ounces of gold. Mill recovery was 97.15% and the recovered grade was 0.166 ounce Au per ton.

Mineable reserves as of June 2000 were 1 139 707 t (1 256 312 tons) grading 8.3 g/t Au or containing 304 132 ounces of gold. In addition, the company calculated resource of 1 024 855 t (1 129 709 tons) grading 4.69 g/t Au or containing 154 535 ounces of gold. Total reserves plus resources were 2 164 562 t (2 386 021 tons) grading 6.59 g/t or containing 458 666 ounces of gold.

Underground workings are accessed by a spiral decline ramp, which was advanced by 560 m to a vertical depth of 226 m. During 2000, the company completed a total of 2170 m of drifting and 6909 m of diamond drilling in 53 holes. Much of the underground drilling was designed to confirm ore continuity of the A1 zone below the 200-m elevation.

In 2001, the company plans to explore the extension of ore zones below the 270-m elevation.

At year-end the company employed 92 people (M. Hoxha, Exall Resources Limited, personal communication, 2001).

Exall Resources Limited and Glimmer Resources Inc., who were locked in a court battle over ownership of the Glimmer Mine, announced litigation between the companies has been resolved. Phase 1 of the deal calls for an end to all disputes relating to the project. The equity split, based on the current capital position of the participants, will be Exall 52% and Glimmer 48% with Exall remaining as operator. Also, an equalization payment of $360,000 will be paid out of mine cash flow on a 75:25 basis to Exall until the payment obligation is fulfilled at which time the venture participants will receive their pro rata share of cash flow. In an effort to further enhance the operation and potentially inject new financing and therefore longevity into the mine, Phase 2 of the settlement would consolidate the mine into Glimmer Resources in return for 52% of the fully diluted share capital of Glimmer or 9,750,000 shares. The "New Glimmer" board would be composed of 3 Exall nominees and 3 Glimmer nominees with an independent chairman (www.exall.com and Exall Resources, Press Release, November 21, 2000).

Kinross Gold Corporation – Kirkland Lake Operation

Kinross Gold Corporation discontinued underground pumping at the Macassa Mine and Lakeshore properties for an indefinite period of time, in July 2000. With the continued low market price for gold, the move will conserve cash by reducing power consumption (Kinross Gold Corp press release, July 13, 2000 and Northern Daily News, July 13, 2000, p.1).

Custom milling of Exall Resources Limited's and Glimmer Resources Inc.'s ore from the Glimmer Mine continued throughout the year.

PolyMet Resources Inc.

PolyMet Resources Inc. purchased the former Temiskaming Testing Laboratory (TTL) building in Cobalt. The building was cleaned up and renovated in order to put the bulk sampling plant back into operation. The assay lab, drying circuit, bulk sampling plant and bullion plant are all operational. Environmental work was 75% complete by year end with Ministry of the Environment and other government agency permits applied for and pending approval. PolyMet has been securing contracts for feedstock and testing materials since early fall 2000. Blackstone Development Inc. and PolyMet Resources Inc. business operations are now located in the TTL building. (G. Chitaroni, personal communication.)

SMC (Canada) Ltd. – McAlpine Mill

SMC (Canada) Ltd., a subsidiary of Sabin Metal Corporation of East Hampton NY, continued to operate the McAlpine mill (formerly Agnico Eagle-Mines Limited's Penn mill purchased in 1998). The mill, consisting of a 200-ton per day gravity-flotation circuit, processes material from waste electronic and microelectronic gear, jewelry, photographic and x-ray film, slag, crucibles, refractory brick and any other products which may contain precious metals.

St Andrew Goldfields Ltd. – Stock, Taylor and Hislop Mines

St Andrew Goldfields Ltd. owns a 1300-t per day CIP mill located in Stock Township in the Timmins Regional Resident Geologist's District, 22 km west of Matheson, and three permitted mine sites in Stock, Taylor, and Hislop townships. The gold deposits of the Stock, Taylor, and Hislop mines occur within, or are proximal to the Porcupine-Destor Deformation Zone.

During 2000, the Hislop open pit mine produced 121 176 t (133 574 tons) of ore, from which 423 858 grams (13 627 ounces) of gold were recovered at the company's Stock mill. The recovered grade was 0.102 ounce gold per ton at a mill recovery of 78.22%.

The company processed ore from Battle Mountain Gold Company's Holloway Mine at the Stock mill. The milling contract with Battle Mountain was cancelled and excess mill capacity was partly offset for a few months by ore from the company's Stock Mine. A combination of under-capacity of mill usage, low grade of ore and low realized gold price forced the company to place its milling and mining operations on care and maintenance and reduce the number of employees from 98 to 4.

As part of refinancing and restructuring of St Andrew, Micon International Limited conducted a review of mineral resources, infrastructure and operating plans at the Taylor Mine development project. Micon concluded that the program of underground development and exploration, for the purpose of advancing the project towards a production decision at a net cost of approximately C$14 million, is fully warranted in the development of the Taylor Mine. St Andrew Goldfields Ltd., with the assistance of Roscoe Postle Associates Inc., estimated an indicated mineral resource for the Taylor Mine property's West Porphyry, Shoot and Shaft zones of 2 074 659 tons grading 0.231 ounce gold per ton containing 458 650 ounces of gold. These zones are estimated to contain an additional inferred resource of 642 427 tons grading 0.27 ounce per ton containing 148 190 ounces of gold. Micon noted the Taylor Mine property has good potential for the discovery of further resources. Mineralization has been encountered over a significant strike length of 10,000 feet, a width of approximately 2,000 feet and to depths of up to 2,100 feet. Three main areas, containing at least two dozen separate zones of gold mineralization, have been discovered to date. Many of these zones remain open in at least one direction. (V. Verkhogliad, personal communication, 2001, St Andrew Goldfields press release, October 11, 2000, St Andrew Goldfields Ltd., News Release November 30, 2000 and http://www.standrewgold.com/)

MINING ACTIVITY – INDUSTRIAL MINERALS

Extender Minerals of Canada Ltd.

Extender Minerals of Canada Ltd. produced approximately 15 000 tonnes barite in year 2000. The Yarrow barite mine, in Yarrow Township, and the new barite mine in North Williams Township,

provided feed for the mill in Powell Township, near Matachewan. Reserves at the Yarrow mine are nearly depleted and the production, in 2001, will be mainly from the new mine in North Williams Township. Mining at the North Williams operation is via a decline ramp and reserves are estimated at a minimum of 4 years of production. The company employs 30 people on a year-round basis and the work force generally increases in summer (R. Hill, Extender Minerals of Canada Ltd., personal communication, 2001).

Hedman Resources Ltd. – Hedman Mine & Mill

Hedman Resources Ltd. signed a binding letter of intent with Enviro Industrial Technologies. Pursuant to terms of the Letter of Intent, Enviro has agreed to acquire up to all of, but not less than 80% of the issued and outstanding common shares of Hedman. After acquisition, it is intended that Hedman's shares will be delisted and Hedman will no longer be a publicly traded company.

Hedman is marketing a proprietary process to create an environmentally safe industrial filler mineral called Superfil. This product is a heat resistant industrial mineral filler that possesses excellent physical properties, enabling it to blend well with most industrial fillers and resins used in numerous applications including brake linings, construction materials, plastics/polymers, asphalt, gaskets, etc.

In 2000, the Hedman did not produce any hedmanite. The company currently employs 16 (D. Houle, personal communication, 2001).

EXPLORATION ACTIVITY

Battle Mountain Gold Company - Blacktop Deposit

In 1999, Battle Mountain Gold Company completed nine diamond drill holes in the Blacktop deposit, over a 300-m strike length. The deposit is approximately 2.7 km east of the Holloway Mine. Some significant assay results include; 0.32 ounce Au per ton over 48 feet, 0.22 ounce Au per ton over 18 feet, and 0.19 ounce Au per ton over 13 feet. Battle Mountain is conducting work in the immediate vicinity of the Holloway Mine, where it reports a number of priority "satellite reserve" opportunities exist, including the 500 XP corridor, the 500XP Lightning zone and the Middle zone. Collectively, additional resources in these areas total about 750 000 ounces of gold. All potential satellite ore bodies could be accessed via the underground from the Holloway Mine.

Immediately west of the Holloway Mine, the first phase of the 505 West exploration drift to evaluate Lightning and Middle zone mineralization west of the current mine limits, is nearly complete. In this area, very positive developments have been made in defining Middle zone mineralization. Significant values returned include 0.616 ounce Au per ton/19.4 feet, 0.228 ounce Au per ton/15.1 feet and 0.229 ounce Au per ton/18 feet. In addition, the 505 West level encountered a northeast trending quartz tourmaline vein with high-grade gold values. The vein trend is normal to all other mineralization at Holloway and had not been recognized previously. The vein has been cut by 14 underground diamond drill holes to-date, and drilling is continuing. The average drill intercept is 5.8 feet wide, grading 0.415 ounce Au per ton. Based on these positive developments, further work will commence immediately. The expectation is that the 505 West exploration program will outline additional reserves equivalent to one year's production (approximately 100,000 ounces).

In 2000, the company discovered a new area of significant alteration and mineralization on the Golden Highway claims. The discovery hole returned 0.104 ounce gold per ton over 105 feet, including, 0.327 ounce gold per ton over 13 feet. (Battle Mountain Gold Company Press Releases, February 4, May 1, July 28 and November 10, 2000, http://www.bmgold.com/ and Northern Daily News, February 9, 2000, p. 3).

Echo Bay Mines Ltd. - Currie-Bowman Property

Echo Bay Mines Ltd. completed additional NQ diamond drilling on the Currie-Bowman property. The program of seven holes, totalling 2100 m, included three holes to further test the Grindstone Creek zone in Currie Township, where in 1999, four out of five diamond drill holes intersected encouraging gold values with silver and zinc in two of the holes. The best intersection in the 1999 program was in hole CB-04 from 338.1 m to 357 m (18.9 m), which assayed 2.08 g/t Au, 18.5 g/t Ag and 0.54% Zn (Cross Lake Minerals Ltd., Company Press Release, February 22, 2000, http://www.crosslakeminerals.com/).

Goldeye Explorations Limited - Tyrrell Township Property

Goldeye Explorations Limited 2000 diamond drill program in Tyrrell Township intersected a 194 m thick interval of 0.25 g/t gold containing a higher grade intersection of 1 m of 10 g/t gold. The High-grade structure was cut by two diamond drill holes and contained values up to 4.8 g over 0.4 m. A new mineralized zone was discovered 1500 m to the east, with an intersection of 0.6 g/t gold over 7.8 m (Goldeye Explorations Limited Press Release May 30, June 16, June 29 and August 19, 2000, http://www.pathcom.com/~goldeye/).

KRL Resources Corp. - Copper Hill Property

KRL Resources Corp. completed 32 line km of TDEM surveys on the Copper Hill property in Macmurchy Twp. Thirteen diamond drill holes were completed over a 3.5 km strike length of favourable geology. A block of ground, along the trend of the known mineralized zone, was acquired from Goldeye Explorations Ltd. Diamond drill hole CH-09, drilled under the Brunet copper zone, intersected 3.46% Cu over 0.5 m. Hole CH-07, drilled about 2200 m to the east, intersected 0.77% Cu and 5.9 g/t Ag over 5.9 m.

A 50 line-km grid was cut over the Golden Sylvia zone, located northeast of the Copper Hill property. Trenching and sampling returned assays up to 1.6 g/t Au in Iron Formation. Continuous chip samples over 1 m intervals returned assays up to 25.9 g/t Au. Field work also included geological mapping, soil sampling and VLF-EM surveys. In total, three zones were discovered. A 13-hole diamond drill program, totalling 860 m, was completed over the area. Six holes, totalling 479 m, tested the Iron Formation zone (GS-01 to GS-04, GS-12, GS-13), five holes, totalling 233 m, tested the 31 North zone (GS-05 to GS-09), and two holes, totalling 148 m, tested the 30 North zone (GS-10, GS-11). Three holes, GS-01, GS-04 and GS-12, intersected 2 zones. The best intersection was 3.41 g/t Au over 3.8 m in drill hole GS-03.

The 31 North zone, located three km north of the IF zone, is an exposed, 2-3 m wide, vertical dipping quartz breccia zone. Grab samples of the zone assayed as high as 36.0 g/t gold. The best intersection was 4.37 g/t Au over 0.8 m in the second intersection of drill hole GS-06.

The 30 North zone is located 200 m west of the 31 North zone, where surface rock samples returned gold values up to 4.8 g/t. The first intersection of drill hole GS-11 averaged 3.5 g/t Au over 1.5 m (KLR Resources Corp. Press Releases February 7, March 13, April 10, May 31, June 22, July 19, August 14, September 5, October 25, November 27, December 1, December 22, 2000 and www.krl.net).

Millstream Mines Ltd. - Kidston Property

Millstream Mines Ltd. concluded an option to earn a 100% working interest in a block of 3 single-unit unpatented mining claims in Munro Twp. The 3 claims are located north of the Potter Mine property and Millstream has signed a joint venture agreement on them with Orogrande Resources Inc. The first exploration phase, completed by September 01/2000, consisted of: a review of all geophysical data, geological data, past drill cores and assays; extending control grid lines from the company 's southern Potter property; planning and coordinating work activities with consultants and sub-contractors; and diamond drilling to favourable horizons at depth. Two hyaloclastite horizons were intersected. Base metal values were low but considered encouraging at an initial stage of exploration (Millstream Mines Ltd. Press Releases, January 25, February 9, July 17, August 30 and October 6, October 25, 2000, http://www.millstreammines.com/).

NovaWest Resources Inc. - GoldenPoly Project

NovaWest Resources Inc. announced diamond drilling results on the company's GoldenPoly polymetallic Zn-Cu-Au-Ag project situated in Pense Township. The company staked and/or purchased an additional 28 contiguous, single-unit mining claims, bringing the total to 45 claim units, in order to encompass potential extensions of mineralization identified to date. The target sedex/exhalite horizon is stratigraphically overlain by Pontiac turbidites and stratigraphically underlain by relatively thin (medial to distal) ultramafic volcanosediments, which are successively underlain by pillow-breccia and steatitized komatiitic ultramafic flows.

Diamond drilling results reported include; drill hole GP-00-06, from 21.0 m to 26.35 m yielded 2.02% Zn; drill hole GP-00-06, collared 38 m east of drill hole GP-97-04, which intersected 3.98 m grading 0.125% Cu, 2.43% Zn, 3.93 g/t Ag and 1.82 g/t Au in the upper zone and 7.87 m grading 0.1599% Cu, 2.18% Zn, 1.48 g/t Ag and 0.0855 g/t Au in the lower zone. Data assessment will be completed prior to the next phase of drilling (NovaWest Resources Inc. Press Releases January 7, January 27, April 4, 2000 and http://www.novawest.com/).

NovaWest Resources Inc. - Bucke Pipe Project

NovaWest Resources Inc. completed a 10-hole diamond drilling program in 2000, on its property hosting the diamond bearing Bucke Pipe. Core samples were submitted to Lakefield Research Limited, Lakefield, Ontario, for analysis. The Bucke Pipe belongs to Group 1 kimberlites (based on Nd verses Sr isotopic composition). The Bucke Pipe is strategically situated 400 metres west of Trans Canada Highway 11, within the Timiskaming Rift.

A second kimberlitic diatreme at the Bucke Pipe Project has been increased by fifty metres bringing the known width to 150 m. It now appears that this second kimberlite body is as large as the main diamondiferous kimberlite on the Bucke Pipe claims. Based on recently available data, the company

believes a third magnetic target situated on the claims will also prove to be a kimberlite diatreme. Newly acquired claims have tripled the area that Novawest controls in Bucke Twp.

The kimberlitic diatremes are markedly zoned, a feature identified by present drilling. It is clear that previous work failed to identify and test many of the zones, particularly those more peripherally located. The present drilling has encountered zones with relatively abundant, purple garnets. Inhomogeneous distribution of mineral phases may similarly characterize the distribution of the diamonds. Due to the obvious potential and growing scope of the current exploration program, the company is actively seeking a joint venture partner for the Bucke Pipe project (NovaWest Resources Inc. Press Releases May 30, July 12 and December 13, 2000, http://www.novawest.com/).

Orex Ventures Inc. – Cooper Lake Property

Orex Ventures Inc. conducted a power stripping and diamond drilling program on its Cooper Lake property in Eldridge and South Lorrain townships, 40 km southeast of Temagami, accessed via the Rabbit Lake Road. Seven short diamond drill holes (581 metres) were completed to test four conductive zones identified by previous geophysical surveys. Although no economic mineralization was encountered, anomalous copper, nickel and silver values of 0.55%, 0.3% and 33.8 g/t respectively, were detected over widths up to 1.2 m (G. Chitaroni, personal communication).

Pelangio Mines Inc. - Battle Mountain Gold Company Joint Venture - STAZ Property

Pelangio Mines Inc. completed a 4-hole, 1571 m, diamond drilling program on the Stoughton STAZ joint venture property in Stoughton Township. The property is located in the Harker-Holloway area, approximately 14.5 km due east of Barrick Gold Corporation's Holt McDermott Mine and Battle Mountain Gold Company's Holloway Mine. The drill program was initiated to evaluate the extent of mineralization intersected in Hole ST98-15 drilled previously by Battle Mountain, which assayed 8.48g/t Au over 4.7 m. Three holes were also completed to evaluate known gold bearing structures in the hangingwall (HW) of the STAZ; the best HW intercept in Battle Mountain Hole ST98-15 was 11.32 g/t Au over 2.0 m. The best intersections are; 5.71 g/t Au over 2.18 m in the HW structure; 1.69 g/t Au over 2.00 m in the Upper STAZ; and 2.47 g/t Au over 2.2 m in the Lower STAZ.

As of Oct. 31, 2000, Pelangio Mines completed the minimum requirements to attain a 20% vested interest in the project. Pelangio has the right to earn up to 50% interest in the project by expending a further $240,000 by April 2002 (Pelangio Mines Inc. Press Releases September 12, September 27, November 7 and December 8, 2000, http://www.pelangio.com/).

Queenston Mining Inc. - Upper Beaver Mine Property

Queenston Mining Inc. completed a diamond drill hole on the North zone of Upper Beaver property. Assay results and drill hole length have yet to be released (Northern Daily News, November 21, 2000, page 3).

Queenston Mining Inc. and Franco-Nevada Mining Corporation Ltd. - Kirkland Lake Gold Project

Queenston Mining Inc. and Franco-Nevada Mining Corporation Ltd. completed a 7-hole 3252 m, diamond-drilling program on the Kirkland Lake gold project in Lebel Township. The drilling was successful in intersecting a new structure, the South Break, as well as making a new gold discovery on the 180 Splay. The objective of the drilling was to explore new gold targets that were identified as a result of the 1999 geological mapping and ground geophysical survey programs. Targets included previously untested portions of the Larder Lake Break (LLB), the South Break (SB) and the 180 Splay. The SB is a newly identified "break" or structure located approximately 700 m south of and trending sub-parallel to the LLB. It has been traced by geophysics on the joint venture property for a distance of 12 km. The 180 Splay is also regarded as a new structure that extends for 2.5 km between the LLB and the SB near the 180 East gold zone. Diamond drill hole MU-11 intersected a 346 m wide zone of alteration, including a 66.4 m section of mineralized and altered syenite, assaying 0.53 g/t Au (Mining North, March 2000, p.11, Queenston Mining Inc. Press Release May 31, 2000, http://www.queenston.ca/).

Temex Resources Corp. - Wilson Lake Property

Temex Resources Corp. continued follow-up exploration for diamonds in the Temagami area. The Wilson Lake property is comprised of 6 separate claim groups. Previous glacial till sampling returned mineral trains of kimberlite indicator minerals. Over 40 circular magnetic anomalies have been identified and most are adjacent to, or within the kimberlite indicator mineral trains. The company is also exploring for Platinum Group Elements (PGE's) in the Temagami area. Follow-up exploration included ground magnetic and horizontal-loop electromagnetic surveys, geological mapping, prospecting, rock sampling and till sampling for kimberlite indicator minerals (Temex Resources Corp. Press Release, June 15, 2000, Mining North, August 2000, p. 7, Assessment Files CO-2575 and CO-2633).

Temex Resources Corp. - Milestone Property

Temex Resources Corp. announced results of their initial program of fieldwork and data compilation on the Milestone Cu-Ni-PGE property located in Strathcona Township. Grab samples collected at 250 m intervals along a 2 km strike length of the Pyrite zone returned copper, palladium and gold values higher than previously reported. Results for the first 15 grab samples ranged up to 4.35% Cu, 1005 ppb Au and 360 ppb combined Pt and Pd (Temex Resources Corp. Press Releases August 23 and December 16, 2000).

Temex Resources Corp. - Cuniptau Silica Property

Temex Resources Corp. announced a letter of intent was signed with Sanca Gold Corp to purchase the Cuniptau Silica property in Best Township. PGE assays as high as 11.1 grams per ton (units in press release listed as g/ton) were received in samples collected from exposed mafic-ultramafic intrusive rocks containing 1%-2% disseminated chalcopyrite to blebby, massive chalcopyrite on the Cuniptau property. The company sampled in areas outside known high grade mineralized sections on the property to evaluate for broader PGE targets (Temex Resources Corp. Press Releases December 14, 2000).

RESIDENT GEOLOGIST STAFF AND ACTIVITIES 2000

At year-end, the staff consisted of G. Meyer, Regional Resident Geologist, G.P.B. Grabowski, District Geologist, D.L. Guindon, District Geologist and L. Wallace, Acting District Support Geologist. M. Charette, District Support Geologist, was seconded to the Mines Group, MNDM, beginning in May. J. Kilbride was Acting District Support Geologist between June and August, followed by L. Wallace until year end. R. Glover, summer experience student, provided client service support and assistance to all staff. R. Zalnieriunas and J. Horne created digital indexes for the Cobalt area assessment using AutoCad. S. Beauchamp, Geological Assistant, based out of the South Porcupine RGO, was involved in verifying MDI2 Kirkland Lake Resident Geologist District data. F. Boucher, also out of the South Porcupine office, provided backup throughout the year for the RGO, Common Counter and Mining Lands Consultant.

G. Meyer, as an Ex Officio Member of the Northern Prospectors Association Executive, was on the organizing committee for the NE Ontario Mines and Mineral Symposium, "Exploration 2000" and joined the Drill Core Library Committee to assist in compiling alternate drill core storage and processing methods.

G.P.B. Grabowski operated a field office in Cobalt for 6 days per month during the field season from May to October and is a member of the Land Use and Resource Management Committee on the Temagami Land Claim negotiations.

D.L. Guindon was involved in testing of MDI software and provided information on the Operation Treasure Hunt geophysical release maps to clients.

M. Charette, J. Kilbride and L. Wallace provided backup for the Mining Lands Consultant and occasionally for the Government Information Centre.

Kirkland Lake RGO staff commented on Official Plans for Armstrong Township, Coleman Township, the Town of Cobalt, and Black River-Matheson. Notices of Consent and Official Plan Amendments for various municipalities were also reviewed.

Kirkland Lake RGO staff contributed material for the NE Ontario's Regional Resident Geologist program display for the PDAC Convention in Toronto, the NE Ontario Mines and Minerals Symposium in Kirkland Lake and the OPA Symposium in Toronto. The Southern Ontario poster for the OPA Symposium was produced in Kirkland Lake.

Kirkland Lake RGO staff conducted 10 field trips to clients in the Cobalt, Matachewan and Highway 101 areas. Field trips for Kirkland Lake Collegiate Vocational Institute students in the Kirkland Lake and Cobalt areas were also provided. Information classes were provided for grade 4 classes at Federal and Swastika public schools and information for career day was provided in Larder Lake.

Although exploration activities in the Kirkland Lake Regional Resident Geologist district were down from the previous year, the office continued to be very active. Please refer to Table 8 for a summary of the year 2000 activities.

PROPERTY EXAMINATIONS

Teddy Bear Valley Mine - Seagers Hill

The Teddy Bear Valley Mine (MDI32D12SE00145) is located in northwest Holloway Township, 0.5 km southwest of the Holloway Mine. The initial work was done on what is known as Seagers Hill and the initial shaft was sunk on a quartz-carbonate vein with tourmaline and visible gold at UTM Zone 17, 5374710N 593035E.

The property is located within the Porcupine-Destor Deformation Zone. Host rocks consist of intensely altered massive, pillowed and brecciated mafic flows, which form part of a fault-bounded block. The block dips steeply south, trends easterly and probably correlates with the Kinojevis Assemblage to the south. A band of conglomerate to the north disconformably overlies the metavolcanic rocks. Folded and faulted conglomerate and greywacke separate the metavolcanic rocks at Seagers Hill from those at the Holloway Mine. Greywacke and shale, underlying the metavolcanic rocks at Seagers Hill, form an anticline (Luinstra and Benn 1999). The metasedimentary rocks have been mapped by the Ontario Geological Survey as part of the Timiskaming Assemblage (Berger 1997).

Seagers Hill was power stripped and washed by Battle Mountain Gold Company, in early autumn of 2000 to provide a better understanding of the alteration, mineralization and structure of the zone. Intensely carbonatized and sericitized mafic volcanic rocks are cut by several sets of sharply defined quartz veins. Free gold occurred in the earliest, east-trending south dipping set of veins in the vicinity of the prospect shaft (Bath 1990). South of the shaft, 2 sets of quartz veins are observed: one set striking 300° and dipping 45° to the northeast and the other striking 030° and dipping 40° to the southeast. The latter set is conformable with a shear zone. Strong sericite-carbonate alteration with associated disseminated pyrite give the weathered surface a rusty brown colour. Alteration in the zone is similar in appearance to that at the Holloway Mine. A sample collected by Kirkland Lake RRGO staff assayed 0.05 ounce Au per ton.

Moffat-Hall Gold Property

Goldaur Resources Inc. acquired a number of properties in Lebel Township, just east of the town of Kirkland Lake. Many of these properties were extensively explored between 1920 and 1940. Only some of the properties were subjected to current exploration methods. Early exploration focused on quartz veins exposed in outcrop. Extensive overburden cover limited exploration efforts, leaving much untested potential in the area.

The Moffat-Hall property consists of 10 contiguous freehold leased mining claims. Access is via Hwy 66 from Kirkland Lake to King Kirkland and then northeast via the Bidgood Road. The trenched areas are within 600 m of the Bidgood Road, approximately 2.7 km from the junction with Hwy 66.

In 2000, 5 trenches were excavated on the Moffat-Hall property, 2 on the 85-1 zone, 2 on the Blue Vein zone and 1 on the 85-12 zone (see Figure 3). Trenches on the 85-1 and Blue Vein zones are the subject of this property examination description. Current work on the 85-1 zone (MDI32D04NW00023) is follow up to exploration programs conducted by ENR Partnership and later, Silver Lake Resources Inc. (Kirkland Lake assessment file KL-0768) between 1980 and 1985. Diamond drill hole 85-1 intersected a zone assaying 3.80 g/t Au over 1.52 m.

The geology of Lebel Township was mapped, by A. MacLean (1944), in the late 1930's and was released as ODM Map 53A at a scale of 1:12,000. The Moffat-Hall property is underlain by Timiskaming Series sedimentary and mafic alkalic volcanic rocks that have been intruded by "porphyrite". Porphyrite is a generic term used by MacLean to describe partially digested sediments and feldspar ± quartz porphyry. These may be either intrusive rocks or partially digested sedimentary or volcanic rocks. They are typically fine to medium grained light grey to buff with feldspars phenocrysts up to 5 mm in diameter. Rock fragments or clasts are common but do not necessarily aid in identifying the origin of the source rock. The "porphyrite" rocks have been subsequently intruded by brick-red to mauve, massive feldspar porphyry dikes.

A number of strong, parallel, northeast-striking, north dipping shear zones traverse the property. Within the "porphyrite", silicification, sericitization and quartz veining has developed within brittle fracture zones. Sulphide mineralization consisting of up to 10% pyrite and possibly minor molybdenite occurs in the altered fractures. Presumably, molybdenite imparts a bluish tint to the rocks, which has been termed the "Blue Vein" zone. Kirkland Lake RRGO staff sampled zones of the strongest blue alteration and assays of up to 250 ppm antimony were obtained. Molybdenum values were unavailable at the time of writing. A recent trenching program confirmed the existence of 3 parallel "Blue Vein" alteration zones. The strike length of each of the 3 zones is in excess of 500 m. Mapping and sampling by Goldaur indicates that the zones are separated by 30-40 m. Assays on the southern zone were higher, with the best assays, from chip sampling, in the 85-1 trench averaging 4.39 g/t Au over 4.0m. Channel sampling, to recheck the zone, returned 95.08 g/t Au over 2.7 m including one sample, which returned 549.16 g/t Au over 0.4 m. A pulp and metallic assay revealed no visible gold present and upon further analysis returned 1590 ppm tellurium (Carmichael, 2000). The writer believes that this sample included a 10 cm wide pyrite-rich band. Similar bands in the Bidgood Mine located to the northeast, were often high grade, near 1 ounce per ton Au (G. Parsons, personal communications 1990).

The Southern zone is exposed in the most westerly "Blue Vein" zone trench at UTM 17 5334558N 580569E. In the most easterly "85-1 zone" trench, the southern zone is exposed at UTM 17 5334920N 580886E. In 1998, a MNDM sample number 98330, collected about 900 m to the southeast at UTM 17, 5334771N 581530E, exhibited the bluish alteration colour similar to the "Blue Vein" zone. An assay on the sample returned 4312 ppb Au. The relationship of this zone to the areas sampled by Goldaur is unknown.

Additional trenching and drilling is warranted on the property to further define the length and grade of these zones and to determine if additional similar zones exist on the property.

Chartre-Dufresne Property – Area 3

The Chartre-Dufresne Property consists of a block of 41 contiguous, 16 hectare claims, 37 of which are located in Flavelle Township, three located in the southwestern corner of Holmes Township and one located in the southeast corner of Alma Township. The property is located 12 km northeast of Matachewan.

Area 3 is located in the south-central part of patented mining claim 16942. A few small pits were blasted in the 1930's to expose quartz veins within rusty and altered sedimentary rocks. In 1994, two small outcrops containing the pits were stripped and cleaned. The larger stripped area, measuring approximately 22 m by 18 m, is east of a winter road and the smaller stripped area, measuring 17 m by 6 m, is west of the road. At the larger stripped area, numerous grab samples, as well as 3 contiguous channel samples cut with a diamond-saw were assayed. All samples are anomalous in gold and range up

to 4.59 g/t gold. Contiguous channel sampling, more or less centered on the larger outcrop, averages approximately 1.28 g/t gold over 5.2 m and coincides approximately with the best results for grab samples (Chartre 1994 & 1995).

Eight grab samples were collected by Kirkland Lake Regional Resident Geologist Office staff in 2000, with the majority collected along and near the central channel sample cut previously with a diamond saw (see Table 10). The average assay of a cluster of five samples, over a width of 5.4 m, is 1.4 g/t gold including one sample grading 4.8 g/t gold (0.14 ounce gold per ton). This sampling is more or less coincident with the location, grade and length obtained in previously reported results.

The rocks in Area 3 are mapped as sedimentary, with a 1-m wide conglomerate band striking at 050° (Chartre 1994 &1995). The rocks are strongly hydrothermally altered and it is difficult to determine the original rock type. Moore (1966 – Map 2078) interpreted the rocks in this area to be mafic and intermediate volcanic rocks with sediments outcropping a short distance to the southwest. Vaguely defined, possibly remnant pillow margins, occur at the southern part of the main outcrop. Quartz occurs throughout the outcrop as randomly oriented and distributed veins, blebs and stringers. One quartz vein, striking north-northwest with a near-vertical dip, is up to 1 m wide and pinches out over several metres to the southeast. The rocks are strongly carbonatized and contain 1 to 10% fine-grained disseminated pyrite. An increase in pyrite occurs along hydrothermally altered fractures. Syenite is exposed at the extreme southwest portion of the smaller of the two overburden-stripped areas and the contact between the sediments and the volcanic-syenite rocks strikes at 100°. The exposed syenite intrusion is likely part of a larger north-trending intrusion, exposed a short distance to the west (Moore 1966 – Map 2078). The gold-bearing zone, which appears to be coincident with schistosity (strikes 055° and dips at 70 to 80° to the south), is diagonal to the southern syenite contact.

Gold values obtained at the two overburden-stripped areas are not spectacular. Anomalous gold values, including some higher grades, occur over a minimum strike length of 40 m and width of 20 m. A magnetometer survey (Chartre 1995) partly covers Area 3 and a magnetic low trending east-northeast coincides with the schistosity of the rocks at the gold showing. To the southwest, the sedimentary/volcanic rocks of Area 3 are intruded by syenite. Due to a lack of outcrop, it is not known if the gold-bearing structure continues into the syenite. Many structures and subsequent gold mineralizing events, at many known gold deposits, postdate syenite intrusions. Also, where auriferous structures cross the syenite/host rock contact, gold tends to predominantly occur in the syenite. Kirkland Lake is a good example of this association. Approximately 80% of gold mined in Kirkland Lake came from quartz veins hosted in syenite. These observations suggest the gold potential of the gold-bearing structure needs to be further explored in the volcanic rocks to the east and in the syenite intrusion to the southwest.

A magnetometer survey should be completed to the east, south and west of the Area 3 gold occurrence. Gold is apparently associated with pyrite mineralization related to a magnetic low trend. An IP survey is recommended to define the strike extent and strongest pyrite mineralization for further follow-up exploration.

D. Zabudski and W. Metherall Catharine Township Gold Occurrence

Prospectors D. Zabudski and W. Metherall discovered a new gold occurrence in 2000 near the north boundary of Catharine Township. The showing is located at UTM 17 5318172N 586590E. In addition, an auriferous boulder was found approximately 50-m east-northeast of the new discovery. The prospectors hold two claims, 1146327 (4 units) and 1196951 (3 units).

The gold occurrence and gold-bearing boulder are approximately 700 m west of the former Cathroy Larder (Mirado) gold producer (MDI32D04SW00004), which produced, from open pit and underground operations, a total of 89 719 tons of ore, from which 10 231 ounces of Au were extracted at a recovered grade of 0.114 ounce Au per ton. At the Mirado open pit, a silicified, carbonatized, pyritized, gold bearing shear zone in intermediate to mafic metavolcanic rocks strikes at 287° and dips 70° north. The new gold occurrence is more or less on strike with the gold mineralized structure at the open pit. A magnetic low, trending west (OGS, Map 82 040) is coincident with the two zones. From the discovery site, the magnetic low trends west northwest for several kilometers. The apparent trend of gold mineralization is at an oblique angle of about 20° to 30° to stratigraphy. A magnetic low is located several hundred meters to the southwest (OGS, Map 82 040). This magnetic low is probably not part of the magnetic low associated with the gold structure and instead appears to coincide with several northwest trending lows associated with intermediate calc-alkalic metavolcanic rocks of the Skead Assemblage.

The gold occurrence is more or less centered on Claim 1146327 (4 units) and an extrapolated strike length of 800 m of favourable gold-bearing structure is covered by the claim.

Host rocks, both at the new showing and at the Mirado pit, are predominantly pyroclastic intermediate to mafic volcanic rocks. The rocks are lapilli-agglomerate volcanic rocks, in which the fragments, averaging 2 cm in diameter, are set in a more felsic matrix. The rocks appear to be slightly silicified and disseminated pyrite occurs mainly around the mafic fragments. At the gold showings, the volcanic rocks are extensively hydrothermally altered and the original textures are not preserved. Gold occurs in silicified, carbonatized and pyritzed hydrothermally altered rock.

Kirkland Lake Regional Resident Geologist Office staff collected ten freshly broken grab samples at several sites in the discovery area. Three samples returned high grade in gold, ranging up to 5.27 ounces gold per ton, and the remaining seven samples are all anomalous. Two of the high grade samples come from the same site and the third one is a boulder located 53 m east and 30 m north of the discovery. The average for the ten samples is 21.086 g/t Au or 0.61 ounce gold per ton (see Table 11) and includes samples from nearby outcrops to the new discovery. The owners completed four short diamond drill holes; results are pending.

The magnetic low, apparently associated with the mineralized zone, may be caused by one of the following:

1. Widespread pyritization of magnetite by hydrothermal fluids along the favourable west trending deformation zone.
2. Two coalescing circular magnetic highs, one centred on the northern boundary of the southeastern most claim unit and the other centred about 400-m east of the same claim unit (OGS, Map 82 040).

The two coalescing magnetic highs trend at an acute angle to the inferred strike of the Skead Assemblage and occur within a band of a low magnetic intensity associated with intermediate to mafic calc-alkalic metavolcanic rocks. The magnetic highs are apparently associated with rocks foreign to the formational host rocks and should be tested as possible kimberlite.

The initial sampling results at the new occurrence are very encouraging. A grid is recommended to cover the two claims (7 units). Geological mapping and magnetometer, EM 16 and IP surveys should precede selective overburden stripping and additional diamond drilling. Since gold mineralization appears to be associated with disseminated pyrite, an IP survey should provide the best results for further

follow-up exploration. Stripping of a generally thin veneer of overburden in the discovery area, ranging up to several metres in thickness, should provide good exposures.

Simpson, M. and Wareing, S. - Gossan Property

M. Simpson and S. Wareing hold a group of 4 claims (14 units) centered in Lot 6, Concession 3, Lorrain Township (NTS:31M/13; UTM: Zone 17 5235197N, 607688E). The property is located 30 km southwest of Cobalt and can be reached by logging roads leading east from the Hound Chutes road, an all-weather Ontario Hydro gravel road leading south from Cobalt.

The area is underlain by an inlier of Archean mafic metavolcanic rocks within Paleo-Proterozoic Huronian sedimentary rocks and Nipissing diabase. Lorrain granite is exposed on the eastern side of the claim group. Lamprophyre dikes cut the metavolcanic rocks. The major structure in the area is the northwest-trending Lake Temiskaming Structural Zone (LTSZ), with the Cross Lake Fault located 2 km east of the property and the Montreal River Fault 4 km to the west.

The area lies between the Cobalt and Silver Centre silver mining camps. Evidence of prospecting for silver is apparent with numerous old pits and trenches on the property. Nothing of significance was reported on the claim group. Several shallow shafts were sunk on properties to the south and west, on quartz-carbonate veins in metavolcanic rocks and Nipissing diabase. No silver production was reported from these workings.

A gossan indicated on Chart A, Lorrain Township (Lovell and de Gris, 1976) was staked by Simpson and Wareing for base metal potential. Power stripping, washing, sampling and mapping was carried out by the claim holders during the 2000 field season. The power stripping uncovered a steeply dipping quartz-carbonate vein (Az 070^0) containing pyrite and chalcopyrite mineralization cutting mafic metavolcanic rocks. Extensive epidote alteration was observed as well. Samples collected by Kirkland Lake RRGO staff returned copper values greater than 1000 ppm. A lamprophyre dike up to 2 m wide intrudes the metavolcanic rocks along the vein. The vein and dike are associated with a lineament that is conjugate to the LTSZ. Similar lamprophyre dikes have been reported on the property immediately to the south, also cutting metavolcanic rocks (Kirkland Lake Resident Geologist Assessment Files). R.P. Sage (2000) stated that kimberlite pipes occur within conjugate structures to the LTSZ.

Further work on the property will focus on base metal mineralization (based on the Cu values and epidote alteration). Exploration for diamonds will also be conducted, based on the lamprophyre dikes (recent diamond discoveries in Wawa were in lamprophyre dikes) and kimberlite potential based on the favourable structures and magnetic anomalies identified in the recent OGS Operation Treasure Hunt airborne survey release (OGS Maps 82 067 and 82 069).

Tryx Ventures Corp. Niemitz Property

Tryx Ventures Corp. holds a group of 12 claims (33 units) in Briggs Township, hosting the Niemitz copper – gold occurrence (MDI31L13NW00019; UTM: Zone 17 5203203N, 579341E) and the Snowshoe Lake copper – gold occurrence (MDI31L13NW00021; UTM: Zone 17 5203366N, 580998E).

The property is located 16 km southwest of Temagami. Access is via the Lake Temagami Access Road, an all-weather gravel road leading west from Highway 11. The claims can also be reached by boat or snowmobile from Lake Temagami.

The Niemitz property is underlain by Temagami Greenstone Belt mafic and felsic metavolcanic rocks intruded by quartz porphyry intrusions and granitoid rocks of the Iceland Lake Pluton. Northeast-trending rhyolitic rocks underly the western portion of the property and intermediate to mafic basaltic rocks underly the south-central portion. Trondhjemitic quartz diorite rocks of the Iceland Lake Pluton underlies the north and east portions of the property. Small, synvolcanic, quartz-diorite plutonic rocks and EW to NW-SE trending mafic dikes intrude the volcanic rocks.

The Niemitz copper – gold occurrence consists of disseminated pyrite and chalcopyrite associated with magnetite-rich quartz-carbonate alteration, within felsic metavolcanic rocks intruded by magnetic quartz porphyritic and mafic dikes. Values up to 0.76% Cu and 6.5 g/t Au have been reported (KL Resident Geologist Assessment Files). The Snowshoe Lake copper – gold occurrence consists of disseminated pyrite and chalcopyrite in dioritic Iceland Lake Pluton rocks. Values up to 0.96% Cu, and 2.75 g/t Au have been reported (Bennett, 1978).

Sampling of the two showings by Kirkland Lake RRGO staff returned values up to 6,848 ppb Au from the Niemitz occurrence and 1770 ppb Au, 187 ppb Pt from the Snowshoe Lake occurrence. Copper values on both properties were greater than 1000 ppm. Samples collected by Tryx Ventures returned similar values (4294 ppb Au – Niemitz and 6571 ppb Au– Snowshoe Lake) (John Poloni, Tryx Ventures, personal communication).

The discovery of high grade copper in 1954 by the Temagami Mining Co. on Temagami Island, 5 km west of the Niemitz Property, sparked intensive exploration activity in the area. The Niemitz gold-copper occurrence was discovered in 1965 by Nickel Rim Mines Ltd. Work by Nickel Rim consisted of diamond drilling, trenching, sampling and a ground magnetometer survey. Further diamond drilling on this property by H. Niemitz and Aladin Minerals Ltd. between 1974 and 1976 intersected 6.3 feet grading 0.76% Cu and 0.19 ounce per ton Au.

Grab samples from a pit on the Lake Temagami Access Road (Snowshoe Lake occurrence), collected by ODM-MNR (Bennett, 1978), returned gold, silver and copper values (0.08 ounce Au per ton, 0.8 ounce Ag per ton and 0.96% Cu, respectively). Follow-up diamond drilling by Sturdy Mines Ltd. in 1971 included best assays of 0.17% Cu and 0.05 ounce per ton Au. Grab samples gave up to 7% Cu and 0.85 ounce per ton Au (KL Resident Geologist Assessment Files). No work was done between 1978 and 1996 as a result of the Temagami Land Claim.

The property was staked in 1997 by G. Chitaroni and T. von Cardinal. With the aid of an OPAP grant in 1998, line cutting, magnetometer and VLF-EM surveys as well as prospecting and sampling was done. The property was optioned to Tryx Ventures in 1999. A geophysical program, including magnetometer, electromagnetic and IP surveys, was carried out by Tryx during the 2000 field season. Part of the claim group lies within the Lake Temagami Skyline Reserve, whereby the line cutting for these surveys required a work permit issued under Regulation 349/98 of the Public Lands Act.

An IP survey, conducted by Quantec Geoscience Inc., identified three high priority targets and ten secondary targets for further evaluation. A drill program, consisting of at least 12 holes, is recommended to test the IP anomalies (KL Resident Geologist Assessment Files). The zone at the north end of the property is within the Temagami Island gabbro and may have PGE potential.

RECOMMENDATIONS FOR EXPLORATION

Potential "New Gold Camp" in Lake Abitibi Area

The potential for gold mineralization in the northwest part of Lake Abitibi has been recognized for some time and was briefly discussed in Meyer et al (2000). To date, exploration efforts have been focussed on Quaternary gold dispersion and several companies performed extensive reverse circulation drill programs. Encouraging results were obtained from sampling Quaternary gold dispersions, but there has been virtually no follow-up exploration in the up ice direction(s) of the most likely source area.

No significant gold deposits have been discovered to date. The main reason is a lack of outcrop due to extensive overburden cover consisting of esker material, clay, partial lake cover and swamps. Traditional prospecting techniques can not be applied and traditional geophysical methods have their limitations.

There is convincing evidence indicative of a yet to be discovered "new gold camp". This is based on the following factors and observations:

1. Occurrence of auriferous quartz boulders
2. Placer gold-bearing Quaternary sediments
3. Gold grains recovered in reverse circulation drill holes and high gold values in heavy mineral concentrates in samples from reverse circulation drill holes
4. Favourable geology consisting mainly of a major east-trending sedimentary sequence bounded to the south by a major deformation zone
5. Flexure in the generally east trending sediments and associated major deformation zone

Multiple quartz boulders have been reported in three locations. At two of these locations, the boulders contain gold and at the third it is not known if they are auriferous. At least 11 rounded quartz boulders occur at five sites, several hundred meters southeast of East Ford Lake, Milligan Township. The average grade of one sample per boulder is 0.328 ounce gold per ton. No host rock is attached to the quartz boulders and the largest of the Milligan boulders measures 5 feet in diameter (Ferguson and Freeman 1978, p 65). Several gold-bearing quartz boulders are documented to occur at the south shore of Camp Three Bay, Lake Abitibi, in Kerrs Township (Cohoon 1982). Some quartz boulders, similar to the East Ford Lake boulders, are reportedly exposed in Camp Three Bay at low water level. These boulders are usually submerged under water and have probably not been sampled (C.J. Baker, personal communication, 2000)(Figure 4).

Gold can easily be panned from Quaternary sediments at 7 sites along 3 eskers. These are as follows:

1. Common corner of Kerrs, Warden and Milligan townships (Ferguson & Freeman 1978 p 164 & 165)
2. North-trending esker along Long Point, Lake Abitibi (C.J. Baker personal communication, 2000)
3. Islands to the north of Long Point, Lake Abitibi (C.J. Baker personal communication, 2000)
4. Hospital Point, Lake Abitibi (C.J. Baker personal communication, 2000)
5. Small island directly west of Hospital Point, Lake Abitibi (C.J. Baker personal communication, 2000)
6. South shore of Camp Three Bay, Lake Abitibi (C.J. Baker personal communication, 2000)
7. Berry Township where gold occurs in esker material (Sharpley 1998) (Figure 4)

At the common corner of Kerrs, Warden and Milligan townships, fine gold grains are both native and telluride (Guindon, 1982). Bay Resources (1985) reported gold grains to range in colour from deep orange to pale yellow. In addition, occasional silver coloured grains, considered possible platinum, were observed. The gold grains along the south shore of Camp Three Bay, western shore of Long Point, islands to the north of Long Point and Hospital Point are coarse and gold in colour. In contrast, gold grains at the small island west of Hospital point are silver in colour, suggesting a different composition and source (C.J. Baker personal communication, 2000).

So far, nine companies completed a total of 473 reverse circulation holes from the Quebec border to and including Moody and Marathon townships to the west. The drilling is spread out over a distance of more than 60 km almost exclusively south of, and along the east trending Lake Abitibi Deformation Zone (LADZ). In the extreme west, reverse circulation drilling was performed both north and south of the interpreted location of the LADZ. In addition, two RC programs were completed north of the LADZ in Hepburn Township adjacent to the Quebec border. Since these holes apparently tested a northwest trending sedimentary belt, they were not included (for some holes plotted, see Figure 4).

The presence of extensive auriferous Quaternary gravel and sand in eskers, auriferous quartz boulders and encouraging basal till results obtained in reverse circulation drilling are indicative of substantial gold occurrences in the up ice direction(s). Many reverse circulation holes penetrated a thick layer of clay and often intersected very little or no basal till. Since the clay formed subsequent to the last ice age, large areas of bedrock must have been exposed at the base of the ice sheet during the last ice age. Much of the detrital material, including gold dispersed in the down-ice direction, could have been derived directly from eroded bedrock. Tracking the source of at least some, if not most of the gold grains in the eskers, can probably be traced directly in the up ice and/or up esker direction. The ice flow during the last ice age in the Lake Abitibi area was at an azimuth of 160° (McClenaghan 1999) and coincides with the alignment of the Camp Three Bay and Milligan gold-bearing boulders. The Milligan boulders are located near the middle of the Munro Esker and are underlain by 50 to 60 m of esker material, of which the upper half consists of sand as determined in Sonic drill hole 85-12 (O.G.S. 1985). This hole tested the esker about 500 m north of the boulders. At Camp Three Bay the quartz boulders are located at the margin of the esker and the thickness of esker material underlying the boulders is not known. Reverse circulation holes drilled just to the north, in the bay, intersected 21 m to 83 m of overburden. The thicker, upper parts of the overburden in the RC holes are clay (Cohoon 1982). In a report by Geomines for St. Genevieve Resources Ltd., (1987), the source of the Milligan boulders was considered to be at least 10 km to the north. Similar boulders at Camp Three Bay are 16 km to the north. If the source is LADZ related, then the actual up-ice source for the Milligan boulders could be as much as 22 km. Some of the eskers, just south of Lake Abitibi, trend to the south (Figure 4). Flow of water in ice-flanked "rivers" during esker formation, probably played a significant role in the dispersion of gold. Ice flow directions during prior ice ages in the Lake Abitibi area are from the east and northeast (McClenaghan 1999 and Figure 4). Consequently, gold dispersions during the most recent and previous ice ages have to be from an azimuth of 340° and/or from further to the east, but not from the west. A dilemma is created by a change in direction of the Munro Esker at Camp Three Bay. South of this bay the esker trends south and northwest to the north. There are two choices to source the gold in Quaternary sediments north of Camp Three Bay. One is to continue at 340° following the alignment of the quartz boulders and the other is to follow the esker to the northwest.

The most likely source area can be best determined by comparing significant aspects of gold camps in the Abitibi such as Timmins and Kirkland Lake, with similarities in the Lake Abitibi area. The Timmins and Kirkland Lake gold camps are characterized by east trending, predominantly sedimentary rocks over distances of at least 280 km and 240 km, respectively. Furthermore, in both gold camps, major deformation zones bound the south contact of the sedimentary belts, Porcupine-Destor Deformation Zone (PDDZ) in Timmins and Larder Lake Deformation Zone (LLDZ) in Kirkland Lake. Just north of

auriferous Quaternary material in the Lake Abitibi area, a major, predominantly east-trending sedimentary belt, partly under Northwest and Northeast bays, can be traced for a total distance of 325 km. A major deformation zone, the Lake Abitibi Deformation Zone (LADZ), bounds the south contact of these sedimentary rocks, similar to Timmins and Kirkland Lake. The distribution of gold deposits, in relation to the LADZ, is probably similar to the distribution of gold deposits in relation to the major deformation zones in Timmins and Kirkland Lake. The PDDZ and LLDZ both host large deposits ~1 million plus ounces gold, predominantly north of the major deformation zones. Some deposits occur very close to or directly in the major deformation zones. An exception is the Ross Mine, which occurs 2.2 km south of the PDDZ (see Table 12 and 13). Two of the three largest gold mines in the Timmins area, the McIntyre and Hollinger mines, are respectively 5.5 and 5.2 km north of the PDDZ. Another significant factor in the distribution of gold deposits in the Timmins and Kirkland Lake gold camps, are east northeast striking flexures of the generally east-trending sediments and their respective south-bounding deformation zones. When transposing these observations to the Lake Abitibi area, the most attractive area for initial follow-up exploration is along the LADZ from east of Northeast Bay to about the middle of Moody Township, a distance of approximately 50 km (see Ayer et al 1999). This coincides with the up-ice direction of the known auriferous Quaternary sediments, which can be traced all along the western shore of Long Point, northwards up to and including the southern part of Hospital Point, which is virtually up to the interpreted location of the LADZ. A review of available assessment work suggests that virtually no work was conducted within an area 5.5-km north and 1 km south of the LADZ in this area. C.J. Baker (personal communication, 2000), based on interpretation of enhanced airborne geophysical data, concludes that the LADZ bifurcates west of Northwest Bay. This suggests an increase in area of good potential to the south. The area with the highest gold potential has to date not been tested by a single diamond drill hole.

Large gold deposits have a strike length rarely exceeding 2 km. An east-trending distribution of gold in Quaternary sediments over a distance of at least 30-km suggests multiple sources for the gold. A multiple source is further indicated by gold coloured and silver coloured gold confined to some specific areas.

A minor, sub-parallel sedimentary belt, with a strike length of 9 km and bounded at the southern contact by a fault zone, has been interpreted to pass through Camp Three Bay. The presence of this belt is interpreted based on airborne geophysics. The short strike length of this belt and gold in the esker north of it at Hospital Point, suggest it to be an unlikely source for the gold in the eskers.

Extensive overburden, swamp and partial lake cover do not allow for conventional prospecting. New exploration tools, suitable for this difficult to explore terrain, are required. Technologies such as IP surveys, walking magnetometer surveys, VLF-EM surveys, vegetation and soil/overburden sampling and enzyme leach testing need to be applied. Such surveys need to be followed by extensive reverse circulation and or sonic drilling and eventually by cross section diamond drilling.

The following is proposed for follow-up exploration:

1. Compile literature and assessment file data on the auriferous quartz boulders and gold-bearing glacial material in the Lake Abitibi area. Plot all reverse circulation holes and significant results and diamond drill holes.
2. Re-interpret reverse circulation logs to re-define up-ice trends of gold dispersion in the older tills.
3. In order to follow up on either high gold grain counts and/or high gold values in heavy mineral concentrates, it is important to determine the age of the host Quaternary sediments. The younger glacial direction is approximately from the north and the older directions more or less from the east.

4. Create shadow maps, from magnetic airborne surveys, for selected areas. These maps can be used to interpret the location of the LADZ and possible splays, and assist in geological interpretations.
5. Locate all known auriferous quartz boulders, and to gain a sense of distance traveled, measure rounding of original edges of boulder faces – determine if sharper edges for the northernmost boulders suggest proximity to the source.
6. Carry out gold panning surveys of Quaternary sediments known to carry gold. Recover gold and study degree of abrasion and shape. Attempt to trace Quaternary dispersed gold as far up ice as possible. This should be done along the northern shore of Lake Abitibi and in selected areas where rivers cross eskers north of Lake Abitibi.
7. All the eskers in the area should be tested for gold. From west to east these are the Munro esker, trending northwest in Kerrs, Galna, Moody and Marathon; northeast corner of Marathon Township; glaciofluvial deposits in Purvis Township; esker in Bonis Township; and esker in Sargeant and Hepburn townships (Lee 1979).
8. In panning for gold and locating auriferous quartz boulders, hydrothermally altered rocks, typical of gold deposits, should be collected, as well as boulders with disseminated sulphides. These should also be assayed for gold.
9. Soil/overburden sampling, enzyme leach testing.
10. Winter – vegetation sampling and testing.
11. Lay out reverse circulation and/or sonic drill program to test the approximate source area(s) of gold dispersion fans. To test for gold dispersion in the younger glacial deposits, fences of holes should follow an approximate direction of 070° and for holes testing the basal tills the direction should be more or less north trending.
12. Carry out section diamond drilling perpendicular to stratigraphy/LADZ consisting of overlapping angle holes at the head of, and to the north of, gold dispersion fans for the younger glacial deposits, and to the east for basal till of the older glacial deposits.
13. The most attractive initial area for testing appears to be in the up-ice direction (340°) of the Milligan boulders both north and south where this boulder train direction intersects the LADZ. The airborne survey in this area indicates the presence of north-trending dykes. These need to be located by ground geophysics prior to commencing diamond drilling in this area. It should be noted that the Munro esker changes direction at Camp Three Bay to a northwesterly trend and it is conceivable that this could mean a directional change in the travel of auriferous quartz boulders. This possibility also needs to be explored prior to commencing with drilling.

Using Operation Treasure Hunt Data to Search for Kimberlite Pipes

Exploration for kimberlite pipes (k-pipes) in the Kirkland Lake and New Liskeard areas waned in the early 1990's following the discovery of diamondiferous k-pipes in the Northwest Territories. At that time, many of the presently known k-pipes, had been discovered. Some of the diamondiferous k-pipes had been bulk sampled using large diameter diamond and percussion drilling equipment. Rejuvenated interest in diamond exploration is currently taking place within the district. This may be due in some part to the discovery of diamonds in the Wawa area, in non-kimberlitic rocks and to the bulk testing of the Victor pipe by De Beers Canada Corporation in the Hudson Bay Lowlands. During the past year, additional drilling was completed on the Bucke pipe. The pipe was found to be multiphase with varying diamond contents. In addition, a new k-pipe was located very close to the original find (NovaWest Resources Inc. Press Release December 13, 2000).

The availability of Operation Treasure Hunt data in a digital format and a freeware viewer (Oasis Montaj by Geosoft Inc.) has given prospectors new tools for working with the data. Previously, only

larger exploration companies and consulting geophysicists could affort to acquire the necessary Geosoft software. This is a technological leap forward from the paper maps traditionally used by prospectors. Magnetic data can be viewed in traditional colour formats or transformed into shaded three dimensional views. The data has been manipulated to search for circular magnetic anomalies using the pattern recognition technique of Keating (1995) and the results saved on CD-ROM in DXF format. Keating anomalies are possible kimberlite pipe targets (see Figure 5). Many, but not all, of the known k-pipes have associated Keating anomalies. Many of the earliest k-pipes found in the area are magnetic highs within areas relatively low and flat in magnetic responses. Maps can be printed on small printers and at a variety of scales.

The technique developed by Keating (1995) identifies targets from the residual magnetic intensity data, based on the identification of roughly circular anomalies. This procedure is automated by using a known pattern recognition technique, which consists of computing, over a moving window, a first-order regression between a vertical cylinder model anomaly and the gridded magnetic data. Only results where the absolute value of the correlation coefficient is above a threshold of 75% were retained. The results are depicted as circular symbols, scaled to reflect the correlation value. The most favourable targets are those that exhibit a cluster of high amplitude solutions. Correlation coefficients with a negative value correspond to reversely magnetised sources. It is important to be aware that other magnetic sources may correlate well with the vertical cylinder model, whereas some kimberlite pipes of irregular geometry may not. Geographic coordinates of Keating anomalies are easily attained from the viewer software by moving the computer cursor onto them. UTM co-ordinates are displayed in the lower right corner of the screen. Coordinates systems used are NAD83 and NAD27 although Keating and EM data, in DXF format, is only available in NAD27.

Sage (1996) notes that kimberlites of Kirkland Lake and Cobalt - New Liskeard are often spatially associated with northwest-trending Lake Timiskaming structures and oblique trending cross structures. The user can change orientation of the sun angle on the shaded view of the gridded magnetic data. This allows the user to emphasize features with a perpendicular orientation. These maps, with superimposed Keating anomalies, can be plotted at a variety of scales and then used in conjunction with geology maps and other available data to eliminate Keating anomalies which can not be due to k-pipes. The recently published Quaternary maps (Baker 2000a, Baker 2000b, Richards and McClenaghan 2000a, 2000b, Vagners 2000) can be used to select areas suitable for overburden sampling to test for indicator minerals. Since kimberlite is generally easily weathered, airphotos may be used to look for corresponding circular topographic depressions or lakes.

Maps created within Oasis Montaj may be exported in a format suitable for use with other digital products, such as the geological compilation maps of Kirkland Lake and Abitibi. These data sets come with a freeware viewer (ArcExplorer by Environmental Systems Research Institute, Inc. [ESRI]). This program can be used to create custom maps.

Diamond Potential and Lamprophyre in the Lake Timiskaming Structural Zone

The occurrence of diamond-bearing kimberlite pipes in the Lake Timiskaming Structural Zone (LTSZ) in the Kirkland Lake – New Liskeard area is well documented and most recently summarized by Sage (1996 and 2000). An important observation is that the kimberlite pipes are located in structures conjugate to the northwest-trending LTSZ.

Diamond exploration in the LTSZ has occurred sporadically since 1968, when a kimberlite dike was identified at the Upper Canada Mine in Gauthier Township, 17 km east of Kirkland Lake. The dike was mapped initially by mine geologists as a "pebbly lamprophyre". A brief period of diamond exploration followed, but no further kimberlite occurrences were reported. In the early 1980's, the search for diamonds was renewed, aided by the discovery of kimberlite boulders by the OGS (Baker 1982) and others in the Munro Esker in Gauthier Township and the Misema Esker further to the east, near the village of Larder Lake. To date, 15 kimberlite pipes have been identified in the KL area, 5 of which are diamondiferous. In the New Liskeard area, 13 kimberlite pipes have been discovered with 5 reported to contain diamonds.

Prior to 1970, diamond exploration concentrated entirely on kimberlite, because production in South Africa came solely from pipes. During the 1970's, diamonds were discovered in lamproitic rocks in Australia. In 1996, diamonds were reported in lamprophyre dikes in the Wawa area. Sage (1999) describes the details of the discovery. The lamprophyre dikes are described as spessartite, heterolithic breccias and amphibolite. Most dikes contain xenoliths.

The definition and classification of lamprophyre, lamproite and kimberlite are discussed by Sage 1996. The term lamprophyre in this discussion is used loosely since more work has to be done, especially petrographic studies (Rock 1977 and 1984), to properly identify the different "lamprophyric" rocks common in the Kirkland Lake and Cobalt areas. Dikes are reported in gold-bearing structures in the Kirkland Lake – Larder Lake area and in silver mines in the Cobalt area. The spatial relationship between gold mineralization and lamprophyre in the Kirkland Lake area has been recognized for years (Thomson 1950, McNeil and Kerrich 1986, Wyman and Kerrich 1988 and Wyman, Kerrich and Sun 1995). Similar relationships have been studied in the Cobalt area as well (Irwin 1987). Many of the area dikes were dismissed for diamond potential when they were classified as lamprophyre and not kimberlite.

During the 2000 field season, 50 samples from 30 lamprophyre dikes in the Kirkland Lake – Cobalt area were submitted to OGS GeoLabs in Sudbury for whole rock, trace element and rare earth element analyses. A sample from the McLean kimberlite pipe in Bucke Township was also submitted for comparison. In addition, 8 samples from 5 lamprophyre dikes from the Wawa area, (including the "Sandor" and "GQ" diamondiferous dikes), were analysed.

Preliminary observations from analytical results indicate the lamprophyre dikes in Kirkland Lake-Cobalt area warrant further investigation for their diamond potential. Figure 6 (TiO_2 vs SiO_2, whole rock data recalculated to eliminate LOI) show a similarity between Wawa area lamprophyre and most Kirkland Lake-Cobalt area lamprophyres. The sample from the McLean kimberlite pipe, a hypabyssal facies kimberlite (Sage 2000), plots outside the lamprophyre clusters. One lamprophyre sample plotted close to the kimberlite and two others were also outside the cluster and nearer the kimberlite plot.

Numerous lamprophyre dikes remain to be sampled in the area. Location and description of lamprophyre can be attained from published OGS-ODM reports. The Ontario Department of Mines, General Index to Publications, Volumes 1 to 9 can be used to search for occurrences of lamprophyre in ODM publications between 1891 and 1984. For example, Johns (1978) described a pebble lamprophyre on the Britcana Property in Bryce Township. In some cases the dikes are combined with other mafic and/or alkalic intrusive rocks in map legends. For example, in Lebel Township, Map 53a, unit A5 is described as basic syenite and lamprophyre.

Although further study of the geochemistry is required to verify results to date, several observations can be made, which warrant a serious investigation of the diamond potential of the lamprophyres in Kirkland Lake -Cobalt area:

- Some Kirkland Lake-Cobalt lamprophyre show similarities in chemistry to the Wawa lamprophyre.
- Most Kirkland Lake-Cobalt lamprophyre contain xenoliths and/or autoliths.
- Most Kirkland Lake-Cobalt lamprophyres trend between northeast to east, perpendicular to the LTSZ.
- There are diamondiferous kimberlite pipes within the Kirkland Lake - Cobalt area. Some of the dikes mapped as lamprophyre may be kimberlite.

OGS ACTIVITIES AND RESEARCH BY OTHERS

Ontario Geological Survey Activities

S.E. Allan sampled stream sediments in the Temagami-Marten River area to determine the distribution of kimberlite indicator minerals. The occurrence of magmatic massive sulphide indicator minerals (MMSIM®), gold and platinum/palladium indicator minerals were also investigated.

Ontario Geological Survey – Operation Treasure Hunt (OTH) Activities

S. Deschamps studied the physical rock properties in the Matheson and Kirkland Lake area in order to develop a database to aid in the interpretation of geophysical data. Physical rock properties of interest are magnetic, electromagnetic, seismic, gravity and gamma ray responses. In the Matheson area, 240 samples (141 of which are diamond drill core) were collected and 232 samples (8 drill core) were collected in the Kirkland Lake – Matachewan area.

During 2000, airborne geophysical surveys were released in the Cobalt –Temagami (July 24 - 3,620 line km), Kirkland Lake (August 17 – 26,264 line km) and Matheson (September 13 – 10,000 line km) areas.

PGE analysis of archived lake sediment samples was completed for the Peterlong-Radisson, Shining Tree and Montreal River Headwaters areas.

Geological Survey of Canada

To complement the OGS Operation Treasure Hunt stream sediment survey in the Timiskaming area, the Geological Survey of Canada collected widely spaced till samples from immediately north of the known kimberlites around New Liskeard to south of Marten River, to document indicator mineral concentrations in till:

1) in background areas north of the kimberlite field
2) overlying the kimberlite field
3) up to 90 km down-ice

Striations were mapped, particularly in the south part of the regional survey area, where there is very little published surficial geology or ice flow information. Ongoing lithological studies of the pebble fraction of the regional till samples will identify the till provenance. In places, till rich in Paleozoic carbonate has been found up to 60 km south from the New Liskeard area while in other places, the till is more locally (less than 2 km) derived. With the newly acquired pebble lithology, ice flow and indicator mineral abundance data, kimberlite indicator mineral anomalies in the region (stream sediments and till) can be properly evaluated and new anomalies identified for follow up by exploration companies. The less than 0.063 mm fraction of the regional till samples is being analyzed geochemically to identify anomalous concentrations of kimberlite-related elements and other commodities (gold, base metals) that may be present in the region. Results from the GSC regional survey will be released in the Spring of 2001.

Thematic studies initiated in 2000-2001 include: evaluation of kimberlitic magnetite as a potential indicator mineral; documentation of the type and abundance of indicator minerals in, and age dating of perovskite from, kimberlite boulders found in local eskers and identification of their potential sources; detailed mineralogical study of the McLean kimberlite (M.Sc. thesis, University of Calgary); biogeochemical study of tree tissue over the Peddie kimberlite; and till partitioning (four size fractions) for trace element studies. These activities are directed towards developing new, or improving existing, exploration methods to increase the effectiveness of exploring for diamonds in the Timiskaming-Kirkland Lake region, in other parts of Ontario and in glaciated Shield terrain across northern Canada. Commercial analytical labs will benefit from the research into appropriate till size fractions, from identification of useful kimberlite pathfinder elements in soil, till, water and vegetation and from testing of appropriate analytical methods for each media type. The regional survey and thematic studies initiated this past summer are part of a three-year GSC study of the Timiskaming kimberlite field. (M.B. McClenaghan, Terrain Sciences Division, Geological Survey of Canada, personal communication, 2001.)

Mineral Exploration Research Centre, Laurentian University

R.A. Sproule, C.M. Lesher, J. Ayer (OGS) and P.C. Thurston (OGS) began a study of temporal and spatial variations in komatiite geochemistry in the Abitibi Greenstone Belt (AGB).

M. Houle, C.M. Lesher, A.D. Fowler, R.A. Sproule, J.A. Ayer (OGS), H.L. Gibson and P.C. Thurston (OGS) began a study of the physical volcanology and metallogenesis of komatiites in the Abitibi Greenstone Belt. The aims of the study are to establish the volcanic facies of komatiites in the AGB in order to constrain stratigraphic, tectonic and metallogenic models. Field work in 2000 in the Kirkland Lake district included visits to Shining Tree, Guibord Township, Pyke Hill (Munro Township), Round Lake Dome (Boston Creek and Otto Lake) and Lake Abitibi. Detailed sampling of drill core from the Potter Mine (Millstream Mines Ltd. - Munro Township) was also done.

Ottawa Carlton Geoscience Centre and University of Ottawa

G. Leblanc, G.W. Johns (OGS), J. Ayer (OGS) and A.D. Fowler began a study to describe and characterize base metal and gold mineralization in the Big Four Lake area in northwest MacMurchy Township, Shining Tree area. The project included detailed mapping and sampling of diamond drill core from KRL Resources Corp.'s exploration project in the area.

B. Luinstra continued structural investigations on the Porcupine-Destor Deformation Zone within the Harker-Holloway Gold Camp. Work completed in 2000 contrasted mineralization styles of the main ore

zones of the Lightning zone at Battle Mountain Ltd.'s Holloway Mine and the South zone at Barrick Gold Corp.'s Holt-McDermott Mine petrographically utilizing the Scanning Electron Microscope.

L. Pigeon and A.E. Lalonde, along with B. Berger (OGS), continued a study of syenitic intrusive rocks that occur near the Porcupine-Destor Deformation Zone in Guibord, Michaud, Garrison and Harker townships, to explore the potential genetic relationship between these intrusions and gold mineralization. Five intrusions were sampled in the 1999 field season; the Iris syenite, Garrison stock, Emens Lake intrusion, Ludgate syenite and the Pangea intrusion.

University of Portsmouth, UK

H.S. Oliver, D.J. Hughes and R.P. Hall, in conjunction with G.W. Johns' (OGS) reappraisal of the Shining Tree area, continued a geochemical evaluation of the metavolcanic rocks. The work is designed to determine the lithostratigraphic development, petrogenesis, tectonic evolution and tectonomagmatic provenance of the Shining Tree greenstone belt.

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Table 1. Summary of claims recorded and assessment work credits filed in the Larder Lake Mining Division - 2000.

Year	Claims Units Recorded	Claim Units Cancelled	Claims Units Active	Total ($)
2000	4 506	9 821	22 633	4 532 745*
1999	4 042	11 603	27 767	11 119 663*
1998	N/A	N/A	35 328	15 152 730*
1997	9599	6858	37 083	N/A
1996	11007	6976	34 342	8 946 773

** Processed in the calendar year for the Kirkland Lake Regional Resident Geologist's District*

Table 2. Mine production and reserves in the Kirkland Lake Regional Resident Geologist's District - 2000.

Mine	Production to end of 2000		Production in 2000		Reserves at end of 2000	
	Tonnage @ Grade	Total Commodity	Tonnage @ Grade	Total Commodity	Tonnage	Grade
Extender Minerals - Yarrow	N/A	N/A	N/A	15 000 t barite - combined for Yarrow and North Williams	None	N/A
Extender Minerals - North Williams	N/A	N/A	N/A		4 years	N/A
Glimmer Mine	1 122 533 tons @ 0.176 ounce/ton Au	198 031 ounce Au	281 927 tons @ 0.166 ounce/ton Au	46 828 ounce Au	2 164 562 t[1]	6.59 g/t Au[1]
Hislop Mine	388 724 tons @ 0.125 ounce/ton Au	48 679 ounce Au	121 176 t @ 3.50 g/t	423 858 g	None	N/A
Holloway Mine	2 324 601 tons @ 0.180 ounce/ton Au	418 845 ounce Au	539 656 tons @ 0.188 ounce/ton Au	101 353 ounce Au	3.98 million t	6.7 g/t Au
Holt-McDermott Mine	6 261 732 tons @ 0.161 ounce/ton Au	1 011 094 ounce Au	536 271 tons @ 0.169 ounce/ton Au	90 712 ounce Au	1 894 132 t	6.674 g/t Au

[1] *Reserves as of June 30, 2000*

Table 3. Assessment files received in the Kirkland Lake Regional Resident Geologist's District in 2000.

Abbreviations

AEM ..... Airborne electromagnetic survey
AM ..... Airborne magnetic survey
ARa ..... Airborne radiometric survey
AVLF-EM ..... Airborne Very Low Frequency EM survey
Beep ..... Beep mat survey
Bulk ..... Bulk sampling
DD ..... Diamond drilling
DDH ..... Diamond drill hole(s)
DGP ..... Down-hole geophysics
EBS ..... Environmental Baseline Study
Gc ..... Geochemical survey
GL ..... Geological survey
Ind ..... Industrial Mineral Study
M ..... Ground magnetic survey
Gv ..... Gravity survey
HLEM ..... Horizontal loop electromagnetic survey
IP ..... Induced polarization survey
Lc ..... Linecutting
OvD ..... Overburden drill hole(s)
PEM ..... Pulse electromagnetic survey
PGM ..... Platinum group metals
Pr ..... Prospecting
PW ..... Physical work
RE ..... Re-evaluation of surveys
R ..... Resistivity survey
rTr ..... Trenching
SA ..... Sampling (other than bulk)
sTr ..... Stripping
VLEM ..... Vertical loop electromagnetic survey
VLF-EM ..... Very low frequency electromagnetic survey
Ug ..... Underground work

Township	Company Name "Property Name"	Year	Type of Work	AFRO Number	Resident Geologist Office File Designation
Alma	Cunningham, L. "Cunningham Property"	1998-1999	DD(2)(711'), Lc, M, SA, sTr, rTr, GL	2.20024, OP98-176	KL-4751, KL-4768
Argyle	3652378 Canada Inc. "Ashley Lake Prospect"	2000	Lc, VLF-EM	2.20209	KL-4764
Askin, Law, Milne, Strathcona	Temex Resources Ltd. "Wilson Lake Property"	2000	GL, Pr, SA	2.20531	CO-2575
Asquith	Skead Holdings Ltd.	1998-2000	VLF-EM, GL, Gc	2.20385	CO-2576
Baden	Cunningham, L. J. "C. V. Group"	1999	Pr, GL, SA, sTr	2.20025	KL-4727
Baden	Rosko, P.A. "Thesaurus Property"	1999	rTr, SA	2.20078	KL-4807
Bannockburn	Kiernicki, F. / Raven Resources "Green Carbonate Project"	1999	sTr, rTr	2.20337	KL-4814
Bannockburn, Powell	Patrician Gold Mines Ltd. "Powell Township Property"	1998	DD(2)(176m)	2.20600	KL-4846
Banting	MacDonnell, A. "Lundy Lake Property"	1998	DD(2)(17m) SA, rTr, Lc	2.20312 OP98-321	CO-2577 CO-2578
Barnet	Obradovich, T. "Barnet Property"	1999	DD(9)(568m)	2.20388	KL-4813
Barr, Klock	Universal Exploration Corp. "Mattawapika Property"	1998-1999	M, VLF-EM, IP, GL, Pr, SA	2.20479	CO-2579
Beatty, Coulson	Maude Lake Explorations "Matheson Property"	1999	DD(2)(630m), SA	2.20030	KL-4728
Beatty, Coulson	McWatters Mining Inc. "Ramp Vein Property"	1999	DD(4)(733m), M, SA, Lc	2.20133	KL-4811

Township	Company Name "Property Name"	Year	Type of Work	AFRO Number	Resident Geologist Office File Designation
Ben Nevis	Sutton, M. "Ben Nevis Property & The Sutton Property"	1999-2000	Lc, IP	2.20386	KL-4815
Benoit	Akulick, A.	1999	sTr	2.20297	KL-4828
Benoit	Croxall, J. "Croxall-Kangas Benoit Twp Property"	1999	DD(2)(262m), SA, Lc, M, VLF-EM	2.20081	KL-4742
Benoit	Jasperson, J. "Hydrothermal Lode Gold Prospect"	1997-1998	Lc, Pr, Gv	2.20477	KL-4835
Benoit	Ward, J. "Jasperson Benoit Twp. Gold Prospect"	1998	Lc, Gv	OP98-382	KL-4775
Bernhardt	Robinson, D.	1998	Lc, Pr, GL, HLEM	OP98-393	KL-4772
Bernhardt	Webster, C.E. "Bernhardt Project"	1998-2000	Lc, Pr, Mag, VLF-EM	2.20215, OP98-062	KL-4757, KL-4785
Bernhardt, Morrisette	O'Connor, F.T. "Goodfish Lake Property"	1998	DD(1)(467')	2.20274, OP98-147	KL-4800, KL-4777
Berry	Bisonnette, M. " M. Bisonnette Property"	1999	DD(3)(592m), SA	2.19859	KL-4685
Berry	Bissonette, M. "Bissonette Property"	1998	Lc, M, HLEM, GL, Gc	OP98-276	KL-4771
Best	Blake, F. "Snare Creek Property"	1998	M, VLF-EM, HLEM, Pr, sTr	OP98-085	CO-2580
Best	Temagami Traprock Ltd. "Roosevelt Road Property"	1998-1999	sTr, SA	2.19977	CO-2581
Black	Allsopp, A. / Luoma, W. "Black Twp. Property"	1998	M, HLEM	OP98-087, OP98-088	KL-4782
Black	Driver Resources "Black Township Property"	1999	DD(2)(501')	2.20336	KL-4812
Black	Driver Resources "Butler Lake Property"	1998	Lc, M, IP	2.20306	KL-4774
Black	Leahy, M. "Black Township Property"	1999	Lc, IP	2.19975	KL-4707
Black	Leahy, M. "Black-Leahy Property"	1999	DD(1)(200m), SA	2.19953	KL-4709
Boston	Pancham Mining Group Ltd.	1998-1999	Pr, SA, rTr, GL	2.20335	KL-4833
Boston	Sutton, M.W.	1998-1999	GL, SA, Lc, M, Gc	2.20482, OP98-175	KL-4770, KL-4841
Bowman	Beckett, T. "Bowman Twp. Property."	1998	Lc, Pr, GL, SA	OP98-083	KL-4786
Bowman	Expatriate Resources Ltd. / Echo Bay Mines Ltd. "Bowman Township Property"	1999-2000	Lc, M, IP	2.19922, 2.20507	KL-4693, KL-4840

KIRKLAND LAKE DISTRICT--2000

Township	Company Name "Property Name"	Year	Type of Work	AFRO Number	Resident Geologist Office File Designation
Bradette	Aurizon Mines Ltd. "Casa Berardi Property"	1999-2000	SA	2.20166	KL-4810
Briggs	TRYX Ventures Corp. "Niemetz Property"	2000	Le, M, HLEM	2.20500	CO-2582
Browning, Ogilvie	Strathclyde Geological Services	1998	GL, Gc, SA	OP98-154	CO-2583
Bryce	Novawest Resources Inc. "Golden Vista Property"	1998	DD(1)(161m) DD(2)(118m), SA	2.19985 2.20210	CO-2584 CO-2585
Bryce, Robillard	Gondor, L. "Bryce Project"	1999 1999 1997 1998	GL, sTr, Pr GL, rTr, sTr STr sTr, GL, Pr	2.19924 2.20129 2.19657 OP98-300	CO-2586 CO-2587 CO-2588 CO-2589
Bucke	Cabo Mining Corp. "North Cobalt Property"	2000	GL, M, VLF-EM	2.20455	CO-2590
Burt	Bastarache, G. "Bastarache - Burt Property"	1999	Le, Pr, sTr, rTr, M, IP	2.20124	KL-4792
Burt	Lacasse, L.	1999-2000	Le, M	2.20307	KL-4830
Cairo	Kiernicki, F. "Highway Group"	1998-1999	Pr, rTr, sTr, GL, SA	2.20520, OP98-063	KL-4781, KL-4843
Carr	Atkinson, P. "Carr Township Property"	1998	Le, VLF-EM	OP98 - 330	KL-4794
Cassels, Strathy	Sudbury Contact Mines Ltd. "Strathy Project (357, 367 and 373)"	1998	DD(8)(2054m)	2.20352	CO-2591
Catharine	Link, T. "Link-Catharine Property"	1999	DD(6)(493m), SA	2.19997	KL-4721
Chambers	Blake, F. "Chambers Twp. Property"	1999	Pr, rTr, SA	2.20530	CO-2592
Chambers	Gauthier, R. "Ultra Property"	1998	GL, rTr, SA	OP98-174	CO-2593
Chambers	Laronde, D. "Chambers Lake Property"	1998	Le, GL, M, VLF-EM, HLEM	OP98-173	CO-2594
Chambers	Laronde, D. "O'Connor Property"	1999	Le, M, VLF-EM, HLEM	2.20433	CO-2595
Chambers	MacDonnell, A. "Chambers Twp. Property"	1999	M, VLF-EM	2.20140	CO-2596
Chambers	Smith, K. "Kirk Smith Property"	1999-2000	Le, M, VLF-EM, HLEM, Pr, SA	2.20528	CO-2597
Chown, Haultain	Zabudsky, D. "Lost Lake Property"	1998	Le, GL, Gc, sTr, rTr	OP98-079	CO-2598
Chown, Lawson	MacGregor, R.A. "Keora Property"	1999	Pr, SA	2.20165	CO-2599
Churchill	Corpomin Management Inc. "Base and Precious Metals Property"	1999-2000	SA, GL, Pr, M, Gc	2.20422	CO-2600

Township	Company Name "Property Name"	Year	Type of Work	AFRO Number	Resident Geologist Office File Designation
Churchill	MacGregor, R.A. "Beilby Lake Property"	1998	M, VLF-EM, Lc, SA	OP98-082	CO-2601
Churchill	Skead Holdings Ltd. "Claim L1238873"	1999-2000	Pr, SA	2.20599	CO-2602
Churchill	Skead Holdings Ltd. "Claim L1238875"	1999-2000	Pr, SA	2.20598	CO-2603
Clifford	Link, T.A. "Clifford Property"	1998	DD(9)(5,245'), IP, SA	OP98-006, 2.19990	KL-4787, KL-4722
Coleman	Traimer, H.	1998	RTr	2.20351	CO-2604
Coleman	Watts, H.A.	1998 1999	Pr, Lc, sTr, rTr Pr, Lc, sTr	2.20305 OP98-183	CO-2605 CO-2606
Coleman	Watts, H.A. "C.J. Davis Property"	1998	Lc, Pr	OP98-184	CO-2607
Cook	Wilzel Resources Ltd.	1999	Lc, GL, Gc	2.20057	KL-4767
Corkill	Ploeger, C.J. "Kell Property"	1999-2000	M, EM, RA, GL, Pr	2.20275	CO-2608
Currie	Falconbridge Ltd. "Currie-Bowman Project - Currie West Claims"	2000	PEM, IP, DD(5)(1652m)	2.20423	KL-4823
Currie, Egan	Moss Resources Inc. /Greenshield Resources Inc. "Curregan Property"	1998	DD(7)(964m), SA	2.19715	KL-4701
Dack	Lashbrook, R. "Hillcrest Property"	1999	GL, SA, sTr	2.19904	CO-2609
Donovan, Ray	Horne, J.D.	1998	Pr, SA	OP98-394	CO-2610
Dufferin, North Williams	Salo, J.A.	1998	Lc, sTr, SA	OP98-167	CO-2611
Eby	Chartre, D. / Dufresne, R.	1998	rTr, sTr, SA, Pr, GL	OP98-131, OP98-132	KL-4780
Eldridge, South Lorrain	Goddard, D.L. "Cooper Lake Property"	1998	IP	2.20058	CO-2612
Elliott	559505 Ontario Limited "50-Ghost East/North Grid"	1999	Lc, M, VLF-EM	2.19912	KL-4697
Elliott	559505 Ontario Ltd. "50 - Ghost - New North Grid"	2000	Lc, M, VLF-EM	2.20136	KL-4747
Elliott	559505 Ontario Ltd. "50-Ghost-East/South Grid"	1999	Lc, M, VLF-EM	2.19928	KL-4716
Elliott	559505 Ontario Ltd. / Perron Gold Corp. "50 - Ghost - New South Grid"	2000	Lc, M, VLF-EM	2.20207, 2.20211	KL-4755, KL-4703
Elliott	Gwen Resources Ltd. "50-Ghost-East/North Grid"	1999	Lc, M, VLF-EM	2.19949	KL-4703

KIRKLAND LAKE DISTRICT--2000

Township	Company Name "Property Name"	Year	Type of Work	AFRO Number	Resident Geologist Office File Designation
Elliott	Gwen Resources Ltd. / Perrex Resources Inc. "Gwen-6 Claim Group"	1999	GL	2.19686	KL-4692
Elliott	Perron Gold Corp. "50 - Ghost - New North Grid"	2000	Lc, M, VLF-EM	2.20082, 2.20125	KL-4744, KL-4746
Elliott	Perron Gold Corp. "50 - Ghost - West/North Grid"	1999	Lc, M, VLF-EM	2.19881	KL-4682
Elliott	Perron Gold Corp. / 559505 Ontario Ltd. "50 - Ghost - New South Grid"	2000	Lc, M, VLF-EM	2.20208	KL-4754
Elliott	Perron, A. "50 Ghost East/North Grid"	1999	Lc, M, VLF-EM	2.19885, 2.19988, 2.19950	KL-4689, KL-4715, KL-4704
Elliott, Garrison	559505 Ontario Ltd. "50 - Ghost - New North Grid"	2000	M, VLF-EM	2.20123	KL-4745
Elliott, Garrison, Harker, Thackeray	559505 Ontario Ltd. / Perron Gold Corp. "50 - Ghost New South Grid"	2000	Lc, M, VLF-EM	2.20280	KL-4796
Elliott, Harker	Alberta Gold Explorations / Perron, A. "The Iris Property"	2000	Lc, M, VLF-EM	2.20459	KL-4825
Elliott, Harker	Perron Gold Corp. / Alberta Gold Exploration "Iris Property - Phase II"	2000	Lc, M, VLF-EM	2.20655, 2.20544, 2.20624, 2.20595	KL-4853, KL-4838, KL-4845, KL-4847
Elliott, Thackeray	Perron Gold Corp. / Perrex Resources Inc. "50-Ghost New North Grid	2000	Lc, M, VLF-EM	2.20377	KL-4817
Elliott, Thackery	Perron Gold Corp / Perrex Resources / Perron "Pot Hole Claims"	2000	Lc, M, VLF-EM	2.20425	KL-4826
Fawcett	Eros Financial Investments Inc. "Gold Belle Property"	1999	Lc, HLEM	2.19970	CO-2613
Frecheville	Adomaitis, P. / Grenier, R. "Backdoor Property"	1998	M, VLF-EM, Lc, Pr, SA, GL	OP98-118, OP98-119	KL-4783
Frecheville, Lamplugh	Beland, D. / Beland, L. "Lamplugh Project"	1998	DD(2)(110'), Lc, HLEM, Pr, sTr, SA	OP98-023, OP98-024	KL-4784
Garrison	Lac Minerals Ltd. "Hastings Option"	1987	M, VLF-EM, IP, DD(23)(18582')		KL-4851
Garrison	O'Connor, T. "T. O'Connor Property"	2000	SA	2.20271	KL-4821
Garrison, Michaud	Globex Mining Enterprises Inc "Tanager Creek Project"	1999	GL, Gc, SA	2.19899	KL-4695
Garrison, Thackeray	Gwen Resources Ltd. "Silverside-64"	1999	Lc, M, VLF-EM	2.19796	KL-4698
Gauthier	559505 Ontario "Northland Group"	2000	Lc, M, VLF-EM	2.20199	KL-4756
Gauthier	Hill, R. "Moose Crossing Group"	1999	DD(1)(268')	2.19951	KL-4708
Gauthier	Queenston Mining Inc. "Mayfair Property"	2000	Lc, M, VLF-EM	2.20511	KL-4836

Township	Company Name "Property Name"	Year	Type of Work	AFRO Number	Resident Geologist Office File Designation
Gauthier	Tremblay, M.	2000	Pr, SA	2.20342	KL-4832
Gauthier, Hearst, McElroy, McVittie, Skead	Skead Holding Ltd. "Larder Lake Area"	1998-1999	SA	2.19879	KL-4725
Gillies Limit	Cabo Mining Corp. "Cobalt Project"	1999 1999 1999	DD(5)(498m) DD(1)(127m) DD(4)(528m)	2.19972 2.19974 2.20048	CO-2617 CO-2618 CO-2619
Gillies Limit	Cabo Mining Corp. "New Lake Property"	2000	M, UTEM, Lc	2.20725	CO-2620
Gillies Limit	Chitaroni, G. "Whitney Lake Property (Rib Lake Grid)"	1998 1998	Lc GL, SA	OP98-339	CO-2614 CO-2621
Gillies Limit	Chitaroni, G. / Raven Resources Inc. "Whitney Lake & Cooperville Property"	1999	DD(4)(156m)	2.19994	CO-2615
Gillies Limit	Goddard, D.L. "Highway 11 Group"	1998	Pr, SA, M, VLF-EM, Lc	OP98-070	CO-2616
Grenfell	2973090 Canada Inc. "Cook Lake Prospect"	1998	Lc, M, VLF-EM, GL, Pr	OP98-171	KL-4776
Grenfell	McCombe, B. / Robinson, D. "Grenfell North Grid / Grenfell South Grid"	1999-2000	Lc, M	2.20085	KL-4806
Grenfell	McCombe, B. / Robinson, D. "Grenfell North Grid"	1999-2000	Lc, GL, M, HLEM, SA	2.20267, 2.20201, 2.20273	KL-4804, KL-4808, KL-4795
Grenfell	McCombe, B.K.	1999-2000	Pr, GL	2.20200	KL-4760
Grenfell	Mullan G.J. / 3652378 Canada Inc. "Cook Lake Prospect"	1999	GL, sTr, rTr, SA	2.19995	KL-4752
Guibord	Meunier, D. "Claim 1169848"	1999	sTr	2.19877	KL-4683
Harker	Perrex Resources Inc. "New East Grid"	2000	Lc, M, VLF-EM	2.19999, 2.20059, 2.20086, 2.20009	KL-4720, KL-4731, KL-4740, KL-4730
Harker	Perrex Resources Inc. "New West Grid"	2000	Lc, M, VLF-EM	2.20173	KL-4753
Haultain	Bowen, L. "Claim 1214012"	1999	Pr, Lc	2.19704	CO-2622
Hepburn, Sargeant	Seal River Explorations "Esker Property"	1999	DD(2)(676'), SA	2.19984	KL-4717
Holloway	Gwen Resources Ltd. "H. & L. Group"	1999-2000	Lc, M, VLF-EM	2.19894, 2.20727	KL-4690, KL-4859
Holloway	O'Connor, F. "Frank O'Connor Property"	1999	rTr, SA	2.19902	KL-4749
Holloway	O'Connor, T.A. "T. O'Connor Properties"	1999-2000	Lc, M, VLF-EM	2.20061	KL-4733

Township	Company Name "Property Name"	Year	Type of Work	AFRO Number	Resident Geologist Office File Designation
Holloway, Marriott	Perron Gold Corp. "101 Property"	2000	Lc, M, VLF-EM	2.20284	KL-4799
Holmes	Lacasse, G.	1999-2000	M, Lc	2.20308, 2.20339	KL-4829, KL-4831
Hudson	Grant Forest Products Inc.	2000	Lc, GL, SA	2.20431	CO-2623
Hudson	Windsor, K. "Claim 1200474"	1999	SA	2.19987	CO-2624
Katrine	Katrine Exploration & Development Inc. "Row-Katrine Property"	1999-2000	VLF-EM, Lc, GL, SA	2.20709, 2.20084	KL-4858, KL-4741
Kelvin	McKinnon, D. "Claw Creek Property"	1998	M, VLF-EM, HLEM, IP	OP98-335	CO-2625
Kerrs, Warden	Dyment, M. / 3652378 Canada "Shallow River East & Botany Projects"	1999-2000	M, HLEM	2.20083	KL-4805
Kerrs, Warden	Tres - Or Resources Ltd. "Shallow River Project"	2000	Lc, M, HLEM	2.20390	KL-4820
Kimberly	Hunt, G. "Claims No. 1206318 & 1206317"	1999	rTr, SA, Bulk, GL	2.19797, 2.19681	KL-4699, KL-4696
Kimberly	Lourim, J. "Heart Lake"	1999	sTr, Lc, Gc, GL, SA	2.19794	KL-4718
Knight	Filo, J.K. / Jones, D.V. "Knight Township Prospect"	1998 1998	DD(2)(298m) DD(2)(298m)	OP98-073; OP98-074, 2.19925	CO-2626 CO-2627
Knight, Tyrrell	Mullen, D.V. "Tyrrell Property"	1998 1998	Gc, HLEM SA, GL	2.20426 OP98-220	CO-2628 CO-2629
Lamplugh	Bouzane, D. "Bouzane Claims"	1999	DD(1)(131m), SA	2.19983	KL-4713
Lamplugh	Henriksen, G.N. "D & D Input Property"	2000	Lc, M, VLF-EM, GL	2.20281	KL-4798
Lamplugh	Henriksen, G.N. "Wishing Well Property"	1999	Pr, Lc, SA, M, VLF-EM, Gc, GL	2.20610	KL-4857
Law	Temex Resources Ltd. "Ingall Lake Property"	2000	M	2.20268	CO-2630
Law, Strathcona	Temex Resources Ltd. "Temagami Area Claim Group"	2000	Lc, M, HLEM	2.20139	CO-2632
Law, Strathcona	Temex Resources Ltd. "Wilson Lake Claims"	1999	Gc, SA	2.19843	CO-2633
Law, Strathcona	Temex Resources Ltd. "Savard, Wilson Lake, Christy Lake, Mann Lake Group"	1999	AEM, AM	2.19845	CO-2631
Lawson	MacGregor, R. "MacGregor / Central Milner Properties"	1997-1999	SA	2.19878	CO-2634
Lebel	Laing, D.L. "Laing - Kirana Property"	1999-2000	Lc, Pr, sTr, SA, GL, VLF-EM, M	2.20315	KL-4819

Township	Company Name "Property Name"	Year	Type of Work	AFRO Number	Resident Geologist Office File Designation
Lebel	Leahy, M. "King Kirkland Property"	1998	DD(1)(553')	OP98-177	KL-4769
Lebel	Vallier Explorations "King Lake"	1998	DD(1)(600')	OP98-139, 2.20279	KL-4778, KL4797
Leonard, MacMurchy, Tyrrell	Goldeye Explorations Ltd. "Tyrrell Knight Gold Area"	1998	AM, ARA, AVLF-EM	2.20546	CO-2635
Leonard, Tyrrell	Burda, D. "Shinning Tree Airborne Consortium"	1998	AM, ARA, AVLF-EM	2.20055	CO-2636
Leonard, Tyrrell	Hanych, W. "Spider Lake Property"	1999	Gc	2.20172	CO-2637
Leonard, Tyrrell	Komarechka, R.G. "Spider Lake Property"	1998	Pr, SA, M	OP98-205	CO-2638
Lorrain	Cabo Mining Corp. "Lang Caswell Property"	2000	GL, M, VLF-EM	2.20456	CO-2639
Lorrain	Cabo Mining Corp. "Pan Lake – Anderson Lake Property"	2000 2000 2000	GL, M, VLF-EM sTr, rTr, SA Lc, M	2.20453 2.20454 2.20473	CO-2640 CO-2641 CO-2642
Lundy	Pollock, J. "Claim 1212048"	1998-2000	Gc, SA, A	2.20087	CO-2643
MacMurchy	KRL Resources Corp. "Copper Hill Property"	1999 2000	VLF-EM, M Gc, SA, DD(7)(2156m)	2.20465 2.20469	CO-2644 CO-2645
MacMurchy	KRL Resources Corp. "MacMurchy Township Property"	2000	VLF-EM, M, Lc	2.20357	CO-2646
MacMurchy	Mullen, D.V. "Shining Tree Property"	1996-2000	DD(2)(250m) Gc, SA	2.20542 2.20543	CO-2647 CO-2648
MacMurchy	O'Connor, F.T. / O'Connor, T.A. / Clowater, R.W. "Knox Property"	1999	rTr, SA	2.20343	CO-2649
Maisonville	Goldeye Explorations Ltd. "Maisonville Property - West Grid"	1999	IP, R, M, HLEM	2.19903	KL-4793
Maisonville	Goldeye Explorations Ltd. "Wolf Lake Grid"	1999	M, IP, HLEM, VLF-EM	2.19927	KL-4801
Maisonville	Skjonsby, K. "Spring Creek Property"	2000	Pr	2.20510	KL-4854
Maisonville	Skjonsby, K.E. "Spring Creek Property"	1999	DD(1)(54.5')	2.20270	KL-4818
Marriott	Perron Gold Corp. "101 Property Marriott Township"	2000	Lc, M	2.20481	KL-4837
McCool	Prism Resources Ltd. "Renaudat Option"	1999	Lc, HLEM	2.19969	KL-4712
McCool	Renaudat, F. "Renaudat Option"	1999	DD(1)(194m), SA	2.19971	KL-4711
McCool	Sudbury Contact Mines Ltd. "Ransom Creek Property"	1998-1999	OvD(9)(232m), SA, IP, R M, Lc	2.19992, 2.19991	KL-4723, KL-4724

Township	Company Name "Property Name"	Year	Type of Work	AFRO Number	Resident Geologist Office File Designation
McGarry	Beckett, T. "Foxearth Lake Property"	1998	Lc, Pr, SA, EM, VLF-EM	OP98-083	KL-4791
McGarry	Salo, A.	2000	Pr, SA	2.20424	KL-4822
McGarry	Salo, A. "Claim 1200023"	1999	sTr	2.19926	KL-4714
McGarry	Salo, A. "Claim L-1187014"	1999	Pr, SA, sTr	2.19858, 2.19941	KL-4687, KL-4702
McGarry	Salo, A. "Claim L-1200023"	1999	Pr	2.19862	KL-4688
McGarry	Salo, A. "Salo McGarry Foxearth Property"	1999	DD(1)(240m), SA, sTr	2.19863, 2.19946, 2.20432	KL-4684, KL-4743, KL-4827
McGarry	Salo, A. "Salo-Ram Property"	2000	Lc, M, VLF-EM, GL	2.20506	KL-4839
McGarry	Salo, A. J. "Salo - McGarry 1 Property"	1998	DD(1)(601'), SA	OP98-010	KL-4788
McGarry	Sudbury Contact Mines Ltd. "Kerrigan Project"	1999	Lc, IP, DD(4)(660m), SA, GL	2.19861, 2.20563	KL-4729, KL-4849
McGarry, McVittie	NFX Gold Inc. / FNX Resources Inc. "Cheminis Mine Project"	1998-1999	DD(17)(131333m)	2.20677	KL-4852
McVittie	Fey, C.J. "Beaver Creek - Kirvit Property"	1999	M, VLF-EM, Lc	2.20214	KL-4824
McVittie	Harrington, M. / Jonpol Explorations Ltd. "Crosby Lake Property"	1999	DD(3)(497.9m.), SA, M, HLEM	2.19911, 2.19923	KL-4750, KL-4726
Melba	Gleeson - Rampton Explorations "Melba Claim Group"	1998	DD(1)(224m), SA	2.20079, OP98-065, OP98-066, OP98-067	KL-4739, KL-4789
Melba	Porrit, D.D./Keast, T.M./Healy, D.R. "Cochenour Creek Copper Project"	1998	Lc, GL, Pr, M, HLEM, SA	OP98-108	KL-4779
Michaud	Moneta Porcupine Mines Inc. "Michaud Property"	2000	IP	2.20198	KL-4809
Michaud	Moses, R.T. "Turner Lake Project"	1999-2000	Lc, Gc, M, SA	2.20128	KL-4748
Michaud	Pacific Minesearch Ltd. / Meunier, D. "Hewitt Lake Property"	2000	M, VLF-EM, IP	2.20344	KL-4816
Michie, Robertson	Dunn, C.G.	1998	Pr, Lc, Gc	OP98 - 012	KL-4790
Midlothian	Orezone Resources Inc. "Midlothian Township Property"	2000	DD(7)(816m)	2.20621	KL-4855
Mond, Raymond	Burns, J.	1999	Lc, M, GL,VLF-EM, SA, DD(1)(40m)	2.20463	CO-2650
Morrisette	Robinson, D., McCombe, B. "Esker Park Property"	1999	Lc, M	2.19948, 2.19947	KL-4735, KL-4736
Munro	Dyment, M. "Potterdoal Plunge Property"	1999	Lc, IP	2.19897	KL-4737

Township	Company Name "Property Name"	Year	Type of Work	AFRO Number	Resident Geologist Office File Designation
Munro	Lalonde, D. "Munro 74 Property"	1999	Lc, IP	2.19846	KL-4719
North Williams	LaCarte, R. "Roy LaCarte Property"	2000	sTr, rTr, GL, SA	2.20674	CO-2651
Noseworthy	Newmont Exploration of Canada Ltd. "Mikwam Project"	1999	AM, AEM	2.19826	KL-4705
Ogilvie	LaCarte, R. "Roy LaCarte Property"	1999	sTr, GL	2.19973	CO-2652
Otto	Dufresne, R. "Chartre-Dufresne 1999 Property"	2000	rTr, sTr	2.20721	KL-4860
Otto	Reed, D. "Reed-Robinson Property"	1997	Pr, SA, rTr	2.19646	KL-4691
Powell	Boyce, E. "Boyce & Banister Property"	1999 - 2000	sTr, rTr, IP, SA, DD(1)(398')	2.20545	KL-4844
Powell	Fekete, M. / Ferderber, R. "Caddy Prospect"	1998	Lc, M, VLF-EM, Gc, Pr, rTr, SA	OP98-351, OP98-352	KL-4773
Powell	Kiernicki, F. "New Years Day Prospect"	1999	rTr, SA, Pr, GL	2.20518	KL-4842
Rankin	Kretschmar, U. "Rankin Lake Gold Property"	1998	Lc, GL, Pr, UG, sTr, rTr, SA	OP98-400	CO-2653
Rickard	Dyment, M., Kidston J. "Twin Dyke Project"	1995	IP, R	2.19898	KL-4694
Robillard	Jkate Explorations Inc. "Robillard Lake Project"	1999-2000	Pr, SA	2.20272	CO-2654
Sheard	Tindale, J.L. "Annett-Tindale Property"	2000	rTr, Pr, SA, sTr	2.20503	CO-2655
Sheba	Dunn, G. "Sheba Queen Property"	1999	Lc, Pr, GL, SA	2.19791	KL-4734
Shillington	Healy, D. "Shillington Property"	1999	Lc, GL, Pr, M, Gc VLF-EM	2.20553	CO-2656
Skead	Kosy, G. / Harrington, M. "Benson Lake Property"	2000	GL, Pr, Lc, M, HLEM, VLEM	2.20623, 2.20625	KL-4850, KL-4848
South Lorrain	Gilead Mineral Corp.. "Veinlode Property"	1999-2000	Lc, PEM	2.20387	CO-2663
South Lorrain	Gore, J. "John Gore Property"	1998 1998 1999 1999	Lc, M, VLF-EM, HLEM Pr, sTr, rTr, SA GL	2.19786 OP98-076 2.19787 2.19785	CO-2658 CO-2660 CO-2659 CO-2657
South Lorrain	Gore, J. "Maidens Lake Property"	1999	Lc, M, VLF-EM, HLEM	2.20596	CO-2661
South Lorrain	Gore, J. "South Oxbow"	1999	DD(3)(716m), SA	2.19930	CO-2662
South Lorrain	Wolverine Exploration and Mineral Recovery "Montreal River Claims"	1999	Pr, SA	2.20162	CO-2664

KIRKLAND LAKE DISTRICT--2000

Township	Company Name "Property Name"	Year	Type of Work	AFRO Number	Resident Geologist Office File Designation
Steele	Horne, J.D. "Case - Rare Metals Pegmatite"	1999-2000	Pr, SA, GL, M	2.20118	KL-4803
Stoughton	Henriksen, G.N. "S & S Property"	1999	Pr, Lc, SA, M, VLF-EM, Gc, GL	2.20609	KL-4856
Strathcona	Laronde, D. "Diadem East Property"	1999	GL, M, VLF-EM, HLEM, SA, Lc	2.20533	CO-2665
Strathcona	Laronde, D. "Diadem West Property"	1999	GL, Lc, M, VLF-EM, HLEM, Pr	2.20555	CO-2666
Strathcona	Temex Resources Ltd. "Diadem / O'Connor Claims"	2000	Pr, SA	2.20620	CO-2667
Strathcona	Temex Resources Ltd. "Savard / Gauthier Claims"	1999	SA, Gc	2.20234	CO-2668
Strathy	Guppy, C. "Bernice Lake Property"	2000	sTr, rTr, GL	2.20303	CO-2669
Strathy	King, D. "King Claims"	2000	Pr, SA, sTr	2.20445	CO-2670
Strathy	Webster, B. "Webster Property"	1998	IP, R	OP98-280	CO-2671
Sulphur Island	Bissonnette, M. "M. Bissonnette Property"	1999	DD(1)(728m)	2.19864	KL-4686
Sulphur Island, Iroquois Point	Mustang Minerals Corp. "Lake Abitibi Property"	1999	Lc, GL, Gc, SA	2.19768	KL-4700
Tannahill	Sedex Mining Corp. / Abitibi Mining Corp. "Tannahill Project"	1996	GL, SA, A	2.19952	KL-4706
Tannahill	Webster, C.E. / Shelp, G.	1999-2000	Lc, Pr, M, VLF-EM	2.20213	KL-4759
Taylor	St Andrew Goldfields Ltd.	1998 1998 1997 1997 1998	DD(1)(245m) DD(1)(461m) DD(1)(626.6m) DD(1)(416m.) DD(1)(261m)	2.20204 2.20205 2.20203 2.20206 2.20202	KL-4761 KL-4763 KL-4765 KL-4766 KL-4758
Teck	Moore, H.A. "H.A. Moore Property"	1999	GL, SA, Gc	2.20060	KL-4732
Teck	Ploeger, J. / McCombe, B. "Federal Claim Group"	2000	Pr, SA	2.20483	KL-4834
Teck	Vallier, B. "Claim 1225701"	1999	sTr	2.19842	KL-4738
Thackeray	Gwen Resources Ltd. "Thackeray Lake Grid"	1999	GL	2.19559	KL-4710
Tyrrell	Battle Mountain Gold Ltd. "Tyrrell Project"	1999	DD(4)(617m)	2.20341	CO-2672
Tyrrell	Goldeye Explorations Ltd. / Inmet Mining Corp. "GRT Property"	1998	IP, Lc, M	2.20521	CO-2675

Township	Company Name "Property Name"	Year	Type of Work	AFRO Number	Resident Geologist Office File Designation
Tyrrell	Goldeye Explorations Ltd. "Tyrrell Property"	1998-1999	IP, R, Lc, M	2.20161	CO-2673
Tyrrell	Goldeye Explorations Ltd. "Tyrrell Property - Cigar Lake Area"	2000	DD(5)(1061m)	2.20685	CO-2674
Tyrrell	Goldeye Explorations Ltd. "Royal Oak J.V.- North Juby Claims"	1998	GL, SA, Gc	2.20080	CO-2676
Tyrrell	Inmet Mining Corp. "Juby Property"	1999	IP, R, M	2.20338	CO-2677
Tyrrell	LaCarte, A. "Claim 119003"	1999	STr	2.19900	CO-2678
Tyrrell	LaCarte, A. "Claim 1202771"	2000	sTr, rTr	2.20269	CO-2679
Tyrrell	LaCarte, R. "Roy LaCarte Property"	1999	sTr, sTr, GL	2.19942	CO-2680
Tyrrell	MacCallum, R. "Claim Group 1222183"	1999	Lc, SA, STr	2.19989	CO-2681
Tyrrell	Orogrande Resources Inc. "Hydro Creek Gold Property"	1998	DD(5)(621m)	2.20622	CO-2682
Tyrrell	Swain, F. / Opara, M. "Claim 1227291"	2000	Pr, Lc, sTr	2.20566	CO-2683
Tyrrell	Swain, F. / Opara, M. "Claims 1227264, 65, 75"	2000	Pr, Lc	2.20630	CO-2684
Tyrrell	Swain, F. / Opara, M. "Claims 1229405, 06"	2000	Pr	2.20631	CO-2685

Table 4. Exploration activity in the Kirkland Lake Regional Resident Geologist's District - 2000.

Abbreviations

AEM ..... Airborne electromagnetic survey
AM ..... Airborne magnetic survey
ARA ..... Airborne radiometric survey
Beep ..... Beep Mat survey
BS ..... Bulk sampling
DD ..... Diamond drilling
DDH ..... Diamond drill hole(s)
DGP ..... Down-hole geophysics
Gc ..... Geochemical survey
GL ..... Geological Survey
GP ..... Ground Geophysics unspecified type
Gv ..... Gravity survey
HLEM ..... Horizontal loop electromagnetic survey
IP ..... Induced polarization survey
Lc ..... Linecutting
M ..... Ground magnetic survey
Met ..... Metallurgical testing
OvD ..... Overburden drilling
ODH ..... Overburden drill hole(s)
PEM ..... Pulse electromagnetic survey
Pr ..... Prospecting
R ..... Resistivity survey
SA ..... Sampling (other than bulk)
Seismic ..... Seismic survey
SP ..... Self-potential survey
sTr ..... Stripping
rTr ..... Trenching
UG ..... Underground exploration/development
VLEM ..... Vertical loop electromagnetic survey
VLF-EM ... Very low frequency electromagnetic survey

No.	Company/Individual (Occurrence Name) or Property	Township/Area	Exploration Activity*
1-82	See Table 3		
83	Temex Resources Corp. (Wilson Lake property)	Askin, Law, Milne, Strathcona	GL, Pr, Gc, Lc, M, HLEM, SA
84	Black Pearl Minerals Consolidated Inc.	Bannockburn	unknown
85	Temex Resources Corp. (Cuniptau Silica property)	Best	SA
86	Echo Bay Mines Ltd.	Bowman, Currie	DD(7)(2100m), SA
87	NovaWest Resources Inc. (Bucke Pipe Project)	Bucke	DD(10)(5000'), SA
88	Cabo Mining Corp.	Bucke, Coleman, Gilles Limit, Lorrain, South Lorrain	DD(10)(1207m), SA, GP, Lc
89	Orex Ventures Inc. (Cooper Lake property)	Eldridge, South Lorrain	DD(7)(581m), Str, SA
90	Queenston Mining Inc. (Upper Beaver property)	Gauthier	DD(1), SA
91	Canadian Arrow Mines Limited / Moneta Porcupine Mines Inc.	Halliday, Midlothian	IP, Lc
92	Battle Mountain Gold Company	Holloway	DD, SA
93	Queenston Mining Inc. - Franco-Nevada Mining Corporation Ltd.	Lebel	DD(7)(3252.4m), SA
94	Millstream Mines Ltd. / Orogrande Resources Inc. (Kidston Property)	Munro	DD(1)(479m), SA, IP
95	Dufresne, R.	Otto	Pr
96	NovaWest Resources Inc. (GoldenPoly Project)	Pense	DD(1), SA
97	Pelangio Mines Inc. - Battle Mountain Gold Company (STAZ)	Stoughton	DD(4)(1571m), SA
98	Temex Resources Corp. (Milestone property)	Strathcona	SA

* *Exploration activity is listed if known.*

Table 5. Property visits conducted by the Kirkland Lake Regional Resident Geologist and Staff in 2000.

Number (keyed to Figure 2)	Property/Occurrence (MDI Number)
1	Anoki (MDI32D04SW00069)
2	Ashley Mine (MDI42A02SW00002)
3	G. Bastarache, Burt Twp. (NEW)
4	Bidgood #1 Shaft (NEW)
5	Bigelow, V. (NEW)
6	Britcanna (MDI41P09NE00023)
7	E. Boyce, Teck Twp. (N/A)
8	Brown-Munro (MDI42A09SW00002)
9	Cabo Mining (MDI31M05SE00095)
10	Carlo (MDI42A09SW00136)
11	Chambers, Coleman Twp. (31M05NE00064)
12	Chartre-Dufresne Property – Area 3 (NEW)[1]
13	G. Chitaroni's Gabbro Property, Banting Twp. (N/A)
14	Clifford (N/A)
15	Cobalt Lake (MDI31M05NE00054)
16	Cobalt Lode (MDI31M05SE00023)
17	Coleroy (MDI41P10NE00038)
18	Copper Pit, (Bulldog), J. Gore, South Lorrain (31M03NW00029)
19	DDH 2 Area, J. Gore, South Lorrain (N/A)
20	DDH KL-0663, Marter Twp.
21	DDH KL-1833, Moody Twp.
22	Dufresne (N/A)
23	Extender Minerals – Road Barite Exposure, Yarrow Twp. (MDI41P15NE00003)
24	Felsite? Intrusions in Huronian Sediments, Matachewan (N/A)
25	F. Kiernicki – Bannockburn Gold Property (MDI42A02SW00037)
26	Gibson (MDI41P11SW00012)
27	Grabowski, R. (N/A)
28	Green Carbonate, Teck Twp. (NEW)
29	Golden Shield, (Mirado), Catharine Twp. (MDI32D04SW00004)
30	Hillcrest (MDI31M13SW00002)
31	Hislop West (MDI4209SW00033)
32	Keeley-Frontier (MDI31M04NE00021)
33	King Kirkland DDH KK-82-2 (MDI32D04W00202)
34	KRL Resources (MDI41P11NE00032)
35	Laguerre (MDI32D04SE00027)
36	Lake Caswell (MDI41P11SE00049)
37	Lamplugh (N/A)
38	T. Link – Catharine Gold Property (N/A)
39	Lucky Ben (MDI42A09SW00004)
40	McCool (N/A)
41	Matachewan Consolidated (MDI41P15NE00014)
42	Moffat Blue Vein (MDI32D04NW00023)[1]
43	Moffat Hall zone 85-1 (MDI32D04NW00023)[1]
44	Moffat Hall 85-12 zone (NEW)
45	Munro Asbestos (MDI42A09SE00011)
46	Niemitz (NEW)[1]

Number (keyed to Figure 2)	Property/Occurrence (MDI Number)
47	Novawest Resources, Bucke Pipe (MDI31M05NE00104)
48	Ophir (MDI31M05SE00108)
49	Orex Ventures (MDI41M04SE00026)
50	Oxbow Lake Property, (Clifton), J. Gore, South Lorrain (31M03NW00024)
51	Pawnee (MDI32D04SW00234)
52	Potter Property - Munro (N/A)
53	Previc - Carr (N/A)
54	Queenston Munro Zone (NEW)
55	Ryan Lake Molybdenite Occurrence ,Yarrow Twp. (MDI41P15NE00015)
56	Simpson, M. & Wareing, S. (NEW) [1]
57	Sturdy (MDI31L13NW00019) [1]
58	Swain, F. & Swain, S. (N/A)
59	Teddy Bear Valley (MDI32D12SE00145) [1]
60	Winward PGE-Cr Property, Nordica Twp.
61	D. Zabudski and W. Metherall's Gold Occurrence, Catharine Twp. (NEW) [1]

[1] *Described in "Property Examinations" section, this report.*
NEW – MDI number to be created
N/A – Does not meet the minimum requirements for an MDI

Table 6. Publications received by the Kirkland Lake Regional Resident Geologist's Office in 2000.

Title	Author	Type and Year of Publication
Nd and Pb isotopes from the Lake of the Woods greenstone belt, northwestern Ontario: implications for mantle evolution and the formation of crust... 2000	Ayer, J.A. and Dostal, J.	Canadian Journal of Earth Sciences, v.37, p.1677-1689 (15174)
Geological Compilation of the Kirkland Lake area, Abitibi Greenstone Belt / Precambrian Geology	Ayer, J.A. and Trowell, N.F.	Ontario Geological Survey, Map P.3425, scale 1:100 000, 2000 (403425)
Radison Lake Quaternary Geology	Bajc, A.F. and Paterson, J.T.	Ontario Geological Survey, Map 2610, scale 1:50 000, 2000 (412610)
Peterlong Lake Quaternary Geology	Bajc, A.F. and Paterson, J.T.	Ontario Geological Survey, Map 2611, scale 1:50 000, 2000 (412611)
Quaternary Geology Magusi River Area	Baker, C.L.	OGS Map 2648, scale 1:50 000, 2000 (412648)
Ramore Area Quaternary Geology	Baker, C.L.	Ontario Geological Survey, Map 2650, scale 1:50 000, 2000 (412650)
Quaternary Geology of the Kirkland Lake Area	Baker, C.L.	Ontario Geological Survey, Map 2649, scale 1:50 000, 2000 (412649)
Precambrian geology, Highway 101 West area	Berger, B.R.	Ontario Geological Survey, Preliminary Map P.3388, scale 1:50 000, 1999 (403388)
Geology of the Monteith area	Berger, B.R.	Ontario Geological Survey, Open File Report 6024, 77p., 2000 (106024)

Title	Author	Type and Year of Publication
Precambrian geology of the Monteith area	Berger, B.R.	Ontario Geological Survey, Preliminary Map P.3367, scale 1:50 000, 1997 (403367)
Precambrian Geology Hislop Township Area	Berger, B.R.	Ontario Geological Survey Map 2527, scale 1:20 000, 2000 (412527)
Ghost Range Precambrian Geology of the Ghost Range area	Berger, B.R., Luinstra, B. and Ropchan, J.C.	Ontario Geological Survey, Map 2563, scale 1:50 000, 2000 (412563)
Magmatic platinum group elements	Berry, C.T.	in Geology of Canadian Mineral Deposit Types, Geological Survey of Canada, Geology of Canada No.8, p.605-614, 1996 (15179)
The Silidor Deposit, Rouyn-Noranda District, Abitibi Belt: geology, structural evolution, and paleostress modelling of an Au quartz vein-type depo...	Carrier, A., Anglier, J. and Holyland, P.	Economic Geology v.95, p.1049-1065, 2000 (15176)
The differentiation of soil types and mineralization from multi-element geochemistry using multivariate methods and digital topography	Grunsky, E.C. and Smee, B.W.	Journal of Geochemical Exploration, v.67, p.287-299, 1999 (15182)
Technique for analysis and visualization of lithogeochemical data with applications to the Swayze greenstone belt, Ontario	Harris, J.R., Wilkinson, L., Grunsky, E., Heather, K. and Ayer, J.	Journal of Geochemical Exploration, v.67, p.301-334, 1999 (15183)
Timing of eastern North American kimberlite magmatism: continental extension of the Great Meteor hotspot track?	Heaman, L.M. and Kjarsgaard, B.A.	Earth and Planetary Science Letters, v.178, p.253-268, 2000 (15180)
Geology, stratigraphy and PGE-Cu-Ni mineralization of the River Valley Intrusion, Field Trip Guidebook, November 3, 2000	Hrominchuk, J.L. and Jobin-Bevans, S.	unpublished field trip guide, 25p., 2000 (149043)
Precambrian geology, Shining Tree area (east half)	Johns, G.W.	Ontario Geological Survey, Preliminary Map P.3389, scale 1:30 000, 1999 (403389)
Precambrian geology, Shining Tree area (west half) 2	Johns, G.W.	Ontario Geological Survey, Preliminary Map P.3420, scale 1:30 000, 2000 (403420)
The application of glacial dispersal models to the interpretation of till geochemistry in Labrador, Canada	Klaasen, R.A.	Journal of Geochemical Exploration, v.67, p.245-269, 1999 (15184)
Till geochemical and indicator mineral methods in mineral exploration	McClenaghan, M.B., Thorleifson, L.H. and DiLabio, R.N.W.	Ore Geology Reviews, V.16, p.145-166, 2000 (15178)
Conodonts and corals in kimberlite xenoliths confirm a Devonian seaway in central Ontario and Quebec	McCracken, A.D., Armstrong, D.K. and Bolton, T.E.	Canadian Journal of Earth Sciences, v.37, p.1651-1663, 2000 (15175)

Title	Author	Type and Year of Publication
Report of Activities 1999, Resident Geologist Program, Timmins Regional Resident Geologist Report: Kirkland Lake and Sudbury Districts	Meyer, G., Cosec, M., Grabowski, G.P.B., Guindon, D.L., Chaloux, E.C. and Charette, M.	Ontario Geological Survey, Open File Report 6007, 91p. , 2000 (106007)
Kirkland Lake Airborne Magnetic and Electromagnetic surveys	OGS	Ontario Geological Survey, Map 82034, scale 1:20 000, 2000 (482034)
Kirkland Lake Airborne Magnetic and Electromagnetic surveys	OGS	Ontario Geological Survey, Map 82032, scale 1:20 000, 2000 (482032)
Kirkland Lake Airborne Magnetic and Electromagnetic surveys	OGS	Ontario Geological Survey, Map 82033, scale 1:20 000, 2000 (482033)
Temagami Airborne Magnetic and Electromagnetic surveys	OGS	Ontario Geological Survey, Map 82065, scale 1:20 000, 2000 (482065)
Kirkland Lake Airborne Magnetic and Electromagnetic surveys	OGS	Ontario Geological Survey, Map 82031, scale 1:20 000, 2000 (482031)
Kirkland Lake Airborne Magnetic and Electromagnetic surveys	OGS	Ontario Geological Survey, Map 82030, scale 1:20 000, 2000 (482030)
Kirkland Lake Airborne Magnetic and Electromagnetic surveys	OGS	Ontario Geological Survey, Map 82028, scale 1:20 000, 2000 (482028)
Kirkland Lake Airborne Magnetic and Electromagnetic surveys	OGS	Ontario Geological Survey, Map 82035, scale 1:20 000, 2000 (482035)
Temagami Airborne Magnetic and Electromagnetic surveys	OGS	Ontario Geological Survey, Map 82066, scale 1:20 000, 2000 (482066)
Kirkland Lake Airborne Magnetic and Electromagnetic surveys	OGS	Ontario Geological Survey, Map 82029, scale 1:20 000, 2000 (482029)
Matheson Area Airborne Magnetic and Electromagnetic Surveys	OGS	Ontario Geological Survey, Map 82021, scale 1:20 000, 2000 (482021)
Kirkland Lake Airborne Magnetic and Electromagnetic surveys	OGS	Ontario Geological Survey, Map 82046, scale 1:20 000, 2000 (482046)
Matheson Area Airborne Magnetic and Electromagnetic Surveys	OGS	Ontario Geological Survey, Map 82016, scale 1:20 000 (482016)
Matheson Area Airborne Magnetic and Electromagnetic Surveys	OGS	Ontario Geological Survey, Map 82017, scale 1:20 000, 2000 (482017)
Kirkland Lake Airborne Magnetic and Electromagnetic surveys	OGS	Ontario Geological Survey, Map 82036, scale 1:20 000, 2000 (482036)
Matheson Area Airborne Magnetic and Electromagnetic Surveys	OGS	Ontario Geological Survey, Map 82019, scale 1:20 000, 2000 (482019)
Matheson Area Airborne Magnetic and Electromagnetic Surveys	OGS	Ontario Geological Survey, Map 82020, scale 1:20 000, 2000 (482020)
Kirkland Lake Airborne Magnetic and Electromagnetic surveys	OGS	Ontario Geological Survey, Map 82045, scale 1:20 000, 2000 (482045)
Matheson Area Airborne Magnetic and Electromagnetic Surveys	OGS	Ontario Geological Survey, Map 82022, scale 1:20 000, 2000 (482022)

Title	Author	Type and Year of Publication
Matheson Area Airborne Magnetic and Electromagnetic Surveys	OGS	Ontario Geological Survey, Map 82023, scale 1:20 000, 2000 (482023)
Matheson Area Airborne Magnetic and Electromagnetic Surveys	OGS	Ontario Geological Survey, Map 82024, scale 1:20 000, 2000 (482024)
Temagami Airborne Magnetic and Electromagnetic surveys	OGS	Ontario Geological Survey, Map 82068, scale 1:20 000, 2000 (482068)
Kirkland Lake Airborne Magnetic and Electromagnetic surveys	OGS	Ontario Geological Survey, Map 82039, scale 1:20 000, 2000 (482039)
Kirkland Lake Airborne Magnetic and Electromagnetic surveys	OGS	Ontario Geological Survey, Map 82043, scale 1:20 000, 2000 (482043)
Kirkland Lake Airborne Magnetic and Electromagnetic surveys	OGS	Ontario Geological Survey, Map 82042, scale 1:20 000, 2000 (482042)
Temagami Airborne Magnetic and Electromagnetic surveys	OGS	Ontario Geological Survey, Map 82067, scale 1:20 000, 2000 (482067)
Kirkland Lake Airborne Magnetic and Electromagnetic surveys	OGS	Ontario Geological Survey, Map 82037, scale 1:20 000, 2000 (482037)
Kirkland Lake Airborne Magnetic and Electromagnetic surveys	OGS	Ontario Geological Survey, Map 82041, scale 1:20 000, 2000 (482041)
Kirkland Lake Airborne Magnetic and Electromagnetic surveys	OGS	Ontario Geological Survey, Map 82038, scale 1:20 000, 2000 (482038)
Kirkland Lake Airborne Magnetic and Electromagnetic surveys	OGS	Ontario Geological Survey, Map 82040, scale 1:20 000, 2000 (482040)
Kirkland Lake Airborne Magnetic and Electromagnetic surveys	OGS	Ontario Geological Survey, Map 82044, scale 1:20 000, 2000 (482044)
Temagami Airborne Magnetic and Electromagnetic surveys	OGS	Ontario Geological Survey, Map 82069, scale 1:20 000, 2000 (482069)
Matheson Area Airborne Magnetic and Electromagnetic Survey	OGS	Ontario Geological Survey, Map 82018, scale 1:20 000, 2000 (482018)
Foleyet-Missinabi area lake sediment survey; Operation Treasure Hunt-Area A	Ontario Geological Survey	Ontario Geological Survey, Open File Report 6014, 122p., 2000 (106014)
Geology of the East Bull Lake intrusion and its contact-type PGE-Cu-Ni mineralization	Peck, D., Barrie, T., Turmel, R., James, R., Wood, P., Larivierre, J. and Lapierre, K.	unpublished field trip guide, 41p. , 2000 (149044)
Quaternary geology of the Porquis Junction area	Richards, J.A. and McClenaghan, M.B.	Ontario Geological Survey, Map 2659, scale 1:50 000, 2000 (412659)
Quaternary geology of the Watabeag River area	Richards, J.A. and McClenaghan, M.B.	Ontario Geological Survey, Map 2658, scale 1:50 000, 2000 (412658)
Kimberlites of the Lake Timiskaming structural zone: supplement	Sage, R.P.	Ontario Geological Survey, Open File Report 6018, 123p., 2000 (106018)
Comparative analysis of sulphides for gold using SXRF and SIMS	Steele, I.M., Cabri, L.J., Gaspar, J.C., McMahon, G., Marquez, M.A. and Vasconcellos, M.A.Z.	Journal of the Mineralogical Association of Canada, v.38, p.1-10, 2000 (15185)

Title	Author	Type and Year of Publication
A crustally contaminated komatiitic dyke-sill-lava complex, Abitibi greenstone belt, Ontario	Stone, M.S. and Stone, W.E.	Precambrian Research v.102, p.21-46, 2000 (15181)
Precambrian geology, Watabeag Lake area	Vaillancourt, C.	Ontario Geological Survey, Preliminary Map P.3421, scale 1:50 000, 2000 (403421)
Diamonds and diamond exploration in the Wawa area, May 31, 2000	Wilson, A.	unpublished field trip guide, 13p. , 2000 (149042)
High-precision exploration geochemistry: applications for volcanogenic massive sulfide deposits	Wyman, D.A.	Australian Journal of Earth Sciences, v.47, p.861-871, 2000 (15177)
The applicability of detecting low level gold anomalies in glaciated terrain, northern Ontario	Xiadong, Z.	Unpublished M.Sc. Thesis, 184 p., Queen's University, Kingston, Ontario, 1994 (120079)
Quaternary geology of the Matheson area	Vagners, U.J.	Ontario Geological Survey, Map 2652, scale 1:50 000, 2000 (412652)
Quaternary geology of the Lightning River area	Vagners, U.J.	Ontario Geological Survey, Map 2651, scale 1:50 000, 2000 (412651)

Table 7. Mineral deposits not being mined in the Kirkland Lake Regional Resident Geologist's District in 2000.

Abbreviations

AF ..... Assessment Files
CMH ..... Canadian Mines Handbook
GR ..... Geological Report
MDC ..... Mineral Deposit Circular
MDIR ..... Mineral Deposit Inventory record
MLS ..... Mining Lands, Sudbury
MR ..... Mining Recorder
NM ..... The Northern Miner
OFR ..... Open File Report
PC ..... Personal Communication

Deposit Name (Township)	Commodity/ MDI No.	Tonnage-Grade Estimates and/or Dimensions	Ownership References	Reserve References	Status
180 East (Lebel)	Au 32D04SW0033 9	327 273 t of 4.11 g/t Au	Queenston Mining Inc. (50%) - Franco-Nevada Mining Corporation Limited (50%) (CMH 2000-2001, p.328)	Queenston Mining Inc. 1999 Annual Report	Inactive
Ajax (Strathy)	Cu, Ni, Au, Ag, PGE 31M04SW0002 2	2 062 505 tons of 0.412% Cu, 0.257% Ni; veins can average 2.9% Ni, 4.0% Cu, 2 g/t Au, 3.4 g/t Pt	Northern Platinum Ltd. (55%) (CMH 2000-2001, p. 287)	CMH 2000-2001, p. 287	Inactive
Amalgamated Kirkland (Teck)	Au 42A01SE00151	1 802 727 t of 5.49 g/t Au	Franco-Nevada Mining Corporation Limited (50%) - Queenston Mining Inc. (50%) (CMH 2000-2001, p.328)	Queenston Mining Inc. 1999 Annual Report	Inactive

Deposit Name (Township)	Commodity/ MDI No.	Tonnage-Grade Estimates and/or Dimensions	Ownership References	Reserve References	Status
Anoki (Gauthier)	Au 32D04SW00069	1 074 545 t of 4.11g/t Au	Queenston Mining Inc. (50%) - Franco-Nevada Mining Corporation Limited (50%) (CMH 2000-2001, p.328)	Queenston Mining Inc. 1999 Annual Report	Active
Argyll (Beatty)	Au 42A09SW00133	87 000 tonnes of 7.54 g/t Au	McWatters Mining Inc. (CMH 2000-2001, p.254)	CMH 1999-2000, p.269	Inactive
Armistice (McGarry)	Au 32D04SE00013	433 981 tons of 0.250 oz per ton Au	Armistice Resources Ltd. (75%) – Sheldon-Larder Mines Limited (25%) (CMH 1999-2000, p.42)	CMH 1999-2000, p.42	Inactive
Barber Larder (McGarry)	Au 32D04SE00043	60 000 tons of 0.16 oz per ton Au	NFX Gold Inc. (75%) - Gwen Resources Ltd. (25%) (CMH 2000-2001, p.277)	CMH 1990-91, p.338	Inactive
Blue Quartz (Beatty)	Au 42A09SW00130	109 000 tons of 0.484 oz per ton Au	Thundermin Resources Ltd. (50%) - River Gold Mines Ltd. (50%) (CMH 2000-2001, p.384)	NM, March 20, 1980	Inactive
Boston Creek (Pacaud)	Au 31M13NW00053	330 000 tonnes of 4.2 g/T Au	Atapa Minerals Limited (50%) - Teck Corporation (CMH 2000-2001, p.42)	CMH 1998-99, p.52	Inactive
Buffonta (Garrison)	Au 32D05NW00009	400 000 tons of 0.15 oz per ton Au	Gwen Resources Ltd. (60%) - AJ Perron Gold Corporation (40%)(CMH 1996-97, p.26)	CMH 1997-98, p.221	Inactive
Cheminis (McVittie)	Au 32D04SE00019	2.9 million tons of 0.17 oz per ton Au	NFX Gold Inc. (75%) – Fort Knox Gold Resources Inc. (25%). (CMH 2000-2001, p.277)	NFX Press Release October 20, 1999.	Inactive
Clenor (Strathy)	Au, Ag 31M04SW00088	24 000 tons of 0.21 oz per ton Au, 1.8 oz per ton Ag	Gwen Resources Ltd. (CMH 1997-98, p.220)	GR 163	Inactive

Deposit Name (Township)	Commodity/ MDI No.	Tonnage-Grade Estimates and/or Dimensions	Ownership References	Reserve References	Status
Commodore (Lebel)	Au NEW	738 000 tons of 0.07 oz per ton Au inferred with a higher grade zone of 307 000 tons of 0.11 oz Au per ton inferred	H.Egg, AF (Sudbury Contact Mines Limited)	AF	Inactive
Creek Zone (Hislop)	Au 42A08NW0014 2	1.1 million tons of 0.186 oz per ton Au	Stroud Resources Ltd. (CMH 2000-2001, p.372)	CMH 2000-2001, p.372	Inactive
Diadem (Strathcona)	Cu, Ni 31M04SW0007 7	450 000 tons of 0.5% Cu, 0.1% Ni to 400 feet	Teck Corporation – Cominco Ltd.	MDIR N 0045	Active
Eastmaque (Teck)	Au 42A01NE00043	2 132 500 tons of tailings of 0.035 oz per ton Au	Hecla Mining Company (Eastmaque to Equinox Resources Ltd to Hecla in 1994) (CMH 1996-97, p.207-208)	CMH 1991-92, p.142	Inactive
Fenn-Gib (Guibord)	Au 42A09SE00054 42A09SE00187	1.95 million t of 5.13 g/t Au above 250 m level	Pangea Goldfields Inc. (100% Gib, 70% Fenn, 30% Homestake Canada Inc.)(CMH 2000-2001, p.312)	CMH 2000-2001, p.312	Inactive
Fort Knox (Fawcett, Ogilvie, North Williams)	Cu, Ni NEW	750 000 tons	Fort Knox Gold Resources Inc. – Inco Limited (CMH 2000-2001, p.161)	AF	Inactive
Garrcon (Garrison)	Au 32D12SW0000 4	350 900 tons of 0.191 oz per ton Au	Moneta Porcupine Mines Inc. (75%) – Jonpol Explorations Limited (25%)(OFR 5735, p.766, CMH 1998-99, p.317)	Jonpol Explorations Limited News Release, February 2, 1988	Inactive
Golden Harker (Harker)	Au 32D05NW0015 9	500 000 tons of 0.16 oz per ton Au	Golden Harker Explorations Limited (CMH 2000-2001, p.181)	NM, March 7, 1988	Inactive
Gordon Lake (Tyrrell)	Au 41P10NW0000 6	225 000 tons of 0.20 oz per ton Au to 750 feet	Duncan Gold Resources Inc. – Dalhousie Oil Company Ltd. (AF)	AF	Inactive
Hislop West (Hislop)	Au 42A09SW0003 3	19 230 tons of 0.59 oz per ton Au	Battle Mountain Gold Company (CMH 1997-98, p.67)	OFR 5735, p.1070	Inactive

Deposit Name (Township)	Commodity/ MDI No.	Tonnage-Grade Estimates and/or Dimensions	Ownership References	Reserve References	Status
Hydro Creek (Tyrrell)	Au 41P11NE00024	535 000 tons of 0.13 oz per ton Au resource	Orogrande Resources Inc. (Orogrande Resources Inc. Press Release May 7, 1998)	Orogrande Resources Inc. Press Release May 7, 1998	Inactive
Iris (Harker)	Au - W 32D05NW0002 1	769 756 tons of 0.07 oz per ton Au	The Alberta Gold Corporation (55%) - Perrex Resources Inc. (45%) (CMH 1995-96 p.289)	AF KL-3170	Inactive
Leckie (Strathy)	Au 31M04SW0009 0	405 000 tons of 0.2 oz per ton Au	Stroud Resources Ltd. (CMH 2000-2001, p.372)	CMH 2000-2001, p.372	Inactive
Ludgate (Michaud)	Au 42A08NE00159	462 000 tonnes of 5.91 g/t Au	Pentland Firth Ventures Ltd. (60%) – Coniagas Resources Limited (40%) (CMH 2000-2001, p.315)	TNM February 1, 1999 p. 2.	Inactive
Macassa (Teck)	Au 42A01SE00020	4 553 000 tons of 0.31 once per ton Au	Kinross Gold Corporation (CMH 2000-2001, p.233)	CMH 2000-2001, p.233	Inactive
Martin-Bird (Hearst)	Au 32D04SE00143	558 000 tons of 0.114 ounce per ton Au	Barrick Gold Corporation (AF KL-3752)	AF KL-3752	Inactive
Matachewan (Powell)	Au 41P15NE00014 41P15NE00017	10 549 000 tons of 0.058 oz per ton Au	Royal Oak Mines Inc. Pricewaterhouse Coopers as receiver (CMH 1999-2000, p.364)	CMH 1998-99, p.398	Inactive
McBean (Gauthier)	Au 32D04SW0006 0	2 676 273 t of 6.17 g/t Au	Queenston Mining Inc. (50%) - Franco-Nevada Mining Corporation Limited (50%) (CMH 2000-2001, p.328)	Queenston Mining Inc. 1999 Annual Report	Active
Newfield (Garrison)	Au 32D12SW0000 42	450 000 tons of 0.28 oz per ton Au	Jonpol Explorations Limited (64.3%) – Aurado Exploration Ltd. (35.7%) (CMH 199-2000, p.240)	CMH 1996-97, p.243 and Jonpol Explorations Limited, Project Progress Report, April 10, 1997	Inactive
Omega (McVittie)	Au 32D04SE00017	720 854 tons of 0.16 oz per ton Au	Greater Lenora Resources Corp. (CMH 2000-2001, p.191)	CMH 2000-2001, p.191	Inactive

Deposit Name (Township)	Commodity/ MDI No.	Tonnage-Grade Estimates and/or Dimensions	Ownership References	Reserve References	Status
Ross (Hislop)	Au 42A08NW00005	1 055 000 tons of 0.125 oz per ton Au	Preston Electrical and Mechanical Ltd. (sold by Giant Yellowknife Mines Limited in 1989 CMH 1990-91, p.188)	CMH 1989-90, p.188	Inactive
Southwest Zone (Michaud)	Au 42A08NE00038	2.36 million tonnes of 6.07 g/t Au	Moneta Porcupine Mines Inc. (CMH 2000-2001, p.266)	CMH 2000-2001, p.266	Inactive
Taylor (Taylor)	Au 42A10SE00066 42A10SE00065 New	Shaft – 607 000 tons of 0.38 oz per ton Au Shoot – 949 000 tons of 0.15 oz per ton Au West Porphyry – 1 918 000 tons of 0.34 oz per ton Au	St Andrew Goldfields Ltd. (CMH 2000-2001, p.367)	CMH 1999-2000, p.387	Active
Teck Hughes (Teck)	Au 42A01NE00020	375 000 tons of 0.2 oz per ton Au	Kinross Gold Corporation - Newfields Minerals Inc. (PC, 1996)	CMH 1991-92, p.270	Inactive
Temagami Copper (Phyllis)	Cu, Ni 41I16NE00004	770 000 tons of 1.04% Cu, 0.46% Ni	Teck Corp. – Cominco Ltd. (AF)	AF	Inactive
Tyranite (Tyrrell, Knight)	Au 41P11NE00013	567 000 tons of 0.18 oz per ton Au	Mill City International Inc. – Tyranex Gold Inc. (CMH 2000-2001, p.259)	NM 06/93	Inactive
Upper Beaver (Gauthier)	Au, Cu 32D04SW00068	180 000 t of 8.6 g/t Au, 1.2% Cu	Queenston Mining Inc. (Queenston Mining Inc. Press Release January 5, 2000)	Queenston Mining Inc. 1999 Annual Report	Active
Upper Canada	Au 32D04SW00057	1 903 455 t of 6.86 g/t Au	Queenston Mining Inc. (50%) - Franco-Nevada Mining Corporation Limited (50%) (CMH 2000-2001, p.328)	Queenston Mining Inc. 1999 Annual Report	Inactive
Victoria Creek (Gauthier)	Au NEW	4 958 000 t of 3.43 g/t Au	Sudbury Contact Mines Limited (CMH 2000-2001, p.373)	CMH 1998-99, p.429	Inactive

Table 8. Summary of Activities of the Kirkland Lake Regional Resident Geologist's Office - 2000.

Activity	Number
Office Visits	2726
Telephone Inquiries	1928
Properties Visited	61
Field Trips Attended	11
Field Trips Given	10
Talks Given	3
Assessment Files & Donations Processed	233
OPAP/Heritage Fund Reports Processed	45
Titles Added to Library Database	253
Drill Holes Added to Drill Core Library	0
MDI Records Updated	approx. 2300
MDI Records Deleted	0
MDI Records Added	4
MDI Records Deepened	7

Table 9. Gold production in the Kirkland Lake Regional Resident Geologist's District – 2000.

Mine	Township	Tons Milled	Production (oz.Au)	Grade (oz./T)	Years of Production
Aljo	Beatty	2,333	42	0.018	1940
American Eagle	Munro	60	40	0.667	1911
Argyll	Beatty	12,455	851	0.068	1918
Armistice	McGarry	8,282	1,035	0.125	1995, 97 (bulk samples)
Ashley	Bannockburn	157,076	50,123	0.319	1932-36
Barber Larder	McGarry	30,118	3,072	0.102	1988
Barry Hollinger	Pacuad	267,741	77,000	0.288	1918,25-36,44-46
Bidgood	Lebel	586,367	160,184	0.273	1934-51
Blue Quartz	Beatty	500	81	0.162	1923,26,28,34
Bourkes	Benoit	1,298	277	0.213	1918,36-38
Buffonta	Garrison	117,013	12,139	0.104	1981,91-92
Canadian Arrow	Hislop	279,593	17,045	0.061	1980-83
Canamax (Matheson Project)	Holloway	38,675	5,391	0.139	1988
Cathroy Larder (Mirado)	McElroy	89,719	10,231	0.114	1941-44,47,57,87
Centre Hill**	Munro	327,007	422	0.001	1967-70
Cheminis	McVittie	179,013	17,530	0.098	1991-96
Chesterville	McGarry	3,260,439	358,880	0.110	1930-52
Croesus	Munro	5,333	14,859	2.786	1915-18,23,31-36
Eastmaque (tailings)	Teck	1,051,744	28,740	0.027	1988-91
Ethel Copper**	James	17,477	115	0.007	1962-67
Gateford (Swastika)	Teck	103,684	30,068	0.290	1910-47***
Glimmer*	Hislop	1,122,533	198,031	0.176	1997-
Golden Summit	Maisonville	737	57	0.077	1936-37,45
Gold Hill	Catharine	4,616	660	0.143	1927-28

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Mine	Township	Tons Milled	Production (oz.Au)	Grade (oz./T)	Years of Production
Gold Pyramid	Guibord	175	36	0.206	1911
Hislop Mine (Hislop East)*	Hislop	388,724	48,679	0.125	1990-91,93-95,99-
Holloway Mine*	Holloway	2,324,601	418,845	0.180	1993,95(preproduction),96-
Holt-McDermott*	Holloway	6,261,732	1,011,094	0.161	1988-
Hudson-Rand	Teck	6,496	483	0.074	1922
Kerr	McGarry	40,336,512	10,457,441	0.259	1911,38-96
Kirkland Lake	Teck	3,140,283	1,172,955	0.374	1916-60
Kirkland Townsite	Teck	4,230	1,921	0.454	1958-59
Laguerre	McVittie	40,514	7,568	0.187	1937-39
Lake Shore	Teck	17,208,323	8,602,791	0.500	1918-65,82-87,97-98
Macassa	Teck	7,877,532	3,525,389	0.448	1933-99
Macassa (Tailings)	Teck	3,117,181	163,761	0.053	1987-99
Matachewan Consolidated	Powell	3,525,200	378,101	0.107	1934-54
McBean	Gauthier	557,621	45,900	0.082	1984-86
Miller Independence	Pacaud	31	59	1.903	1918
Moffat-Hall	Lebel	16,388	4,780	0.292	1934-35
Morris Kirkland	Lebel	127,253	16,999	0.134	1936-38 40-42
New Telluride	Skead	104	62	0.596	1931-32
Newfield	Garrison	55,000	9,680	0.176	1996(bulk sample)
Omega	McVittie	1,615,081	214,098	0.133	1913,26-28,36-47
Queenston	Gauthier	1,054	177	0.168	1941
Ronda	Macmurchy	24,592	2,727	0.111	1939
Ross	Hislop	6,714,482	995,832	0.148	1936-89
Ryan Lake**	Powell	188,790	1,352	0.007	1948-57,62-64
Stairs	Midlothian	15,835	3,573	0.226	1965-66
Sylvanite	Teck	5,049,536	1,674,808	0.332	1927-61
Teck Hughes	Teck	9,565,302	3,709,007	0.388	1917-68
Toburn	Teck	1,186,316	570,659	0.481	1917-68***
Tyranite	Tyrrell	223,810	31,352	0.140	1939-42
Upper Beaver	Gauthier	580,562	140,709	0.242	1913-72***
Upper Canada	Gauthier	4,648,984	1,398,291	0.301	1938-71
White-Guyatt	Munro	50	10	0.200	1911
Wright Hargreaves	Teck	9,934,327	4,821,296	0.485	1921-65
Young Davidson	Powell	6,218,272	585,690	0.094	1934-57
Total including tailings		**138,618,706**	**41,002,998**	**0.296**	
Total excluding tailings		**134,449,781**	**40,810,497**	**0.304**	
Kirkland Lake Camp (West to East)					
Macassa	Teck	7,877,532	3,525,389	0.448	
Kirkland Lake	Teck	3,140,283	1,172,955	0.374	
Teck Hughes	Teck	9,565,302	3,709,007	0.388	
Lake Shore	Teck	17,208,323	8,602,791	0.500	
Wright Hargreaves	Teck	9,934,327	4,821,296	0.485	
Sylvanite	Teck	5,049,536	1,674,808	0.332	
Toburn	Teck	1,186,316	570,659	0.481	
Total		**53,961,619**	**24,076,905**	**0.446**	

Mine	Township	Tons Milled	Production (oz.Au)	Grade (oz./T)	Years of Production
Kirkland Lake Tailings					
Eastmaque (tailings)	Teck	1,051,744	28,740	0.0273	
Macassa (Tailings)	Teck	3,117,181	163,761	0.0525	
Total		**4,168,925**	**192,501**	**0.046**	
Virginiatown Camp					
Chesterville	McGarry	3,260,439	358,880	0.1101	
Kerr	McGarry	40,336,512	10,457,441	0.2593	
Total		**43,596,951**	**10,816,321**	**0.248**	
Holloway Camp					
Holloway Mine*	Holloway	2,324,601	418,845	0.180	
Holt-McDermott*	Holloway	6,261,732	1,011,094	0.161	
Total		**8,586,333**	**1,429,939**	**0.167**	
Hislop Camp					
Glimmer*	Hislop	1,122,533	198,031	0.176	
Hislop Mine (Hislop East)*	Hislop	388,724	48,679	0.125	
Ross	Hislop	6,714,482	995,832	0.148	
Total		**8,225,739**	**1,242,542**	**0.151**	
Matachewan Camp					
Matachewan Consolidated	Powell	3,525,200	378,101	0.107	
Young Davidson	Powell	6,218,272	585,690	0.094	
Total		**9,743,472**	**963,791**	**0.099**	

* *Producer in 2000*
** *Base Metal Production*
*** *Intermittent Production*

Table 10. Grab samples from Chartre-Dufresne's property - Area 3

Sample No. 00-GM-	Location UTM	Au ppb	Au oz/ton
100	17 5315872.4N 536120E	518.18	
101	17 5315872.7N 536118.2E	255.22	
102	17 5315875.2N 536119.4E	603.69	
103	17 5315877N 536119.7E	4800	0.14
104	17 5315877.4N 536117.9E	975.49	
105	17 5315879.2N 536116.3E	116.16	
106	17 5315871.3N 536126E	221.24	
107	17 5315871.1N 536124.9E	47.35	

Table 11. Grab Samples from D. Zabudski and W. Metherall's Gold Showing in Catharine Township

Sample No. 00-GM-	Location UTM	Au ppb	Au oz/ton	Remarks
60	17 5318122N 586549E	153		
61	17 5318168N 586545E	26		
62	17 5318166N 586591E	15428	0.45	
63	17 5318223N 586558E	457		
64	17 5318196N 586565E	395		
65	17 5318141N 586802E	24		
90	17 5318218N 586690E	135		
91	17 5318199N 586643E	13371	0.39	boulder
92	17 5318172N 586586E	186		
93	17 5318172N 586590E	180686	5.27	
Total		**210861**		

Average of 10 grab samples 21.09 g/t Au or 0.615 ounce per ton Au
Note: Several samples are from the general new gold discovery area. All samples are anomalous in gold.

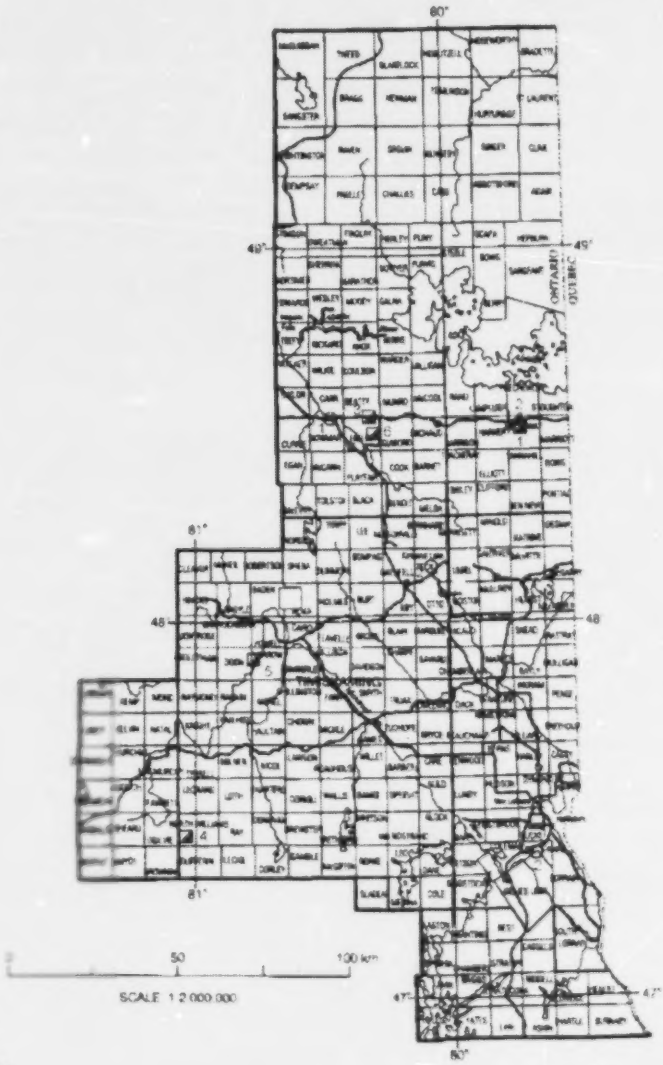
Table 12. Distance of significant mines from the Porcupine-Destor Deformation Zone (PDDZ) from Timmins to the Quebec border

Mine	Million oz Au produced	Distance in Km North (+) or South (-) of PDDZ
Aunor	2.5	1
Buffalo Ankerite	1.0	1
Delnite	0.9	1
Dome	14.0	1.4
Hallnor	1.7	1.5
Hollinger	19.0	5.2
Hoyle Pond	1.3	1.3
McIntyre Pamour Schumacher	10.7	5.5
Pamour	4.0	1.3
Paymaster	1.2	1.5
Preston	1.5	0.6
Taylor	>1.0	0
Ross	1.0	-2.2
Holloway	>1.0	0.5
Holt McDermott	>1.0	-0.4

Table 13. Distance of significant mines from Larder Lake Deformation Zone (LLDZ) – Matachewan to Virginiatown

Mine	Million oz Au produced	Distance in Km North (+) or South (-) of LLDZ
Kerr & Chesterville	10.8	0 to -0.2
Kirkland Lake - Seven Gold Mines	24.0	2
Matachewan Cons. & Young Davidson	0.96	-0.4
Upper Canada	1.4	1.5

KIRKLAND LAKE REGIONAL RESIDENT GEOLOGIST'S DISTRICT



LEGEND

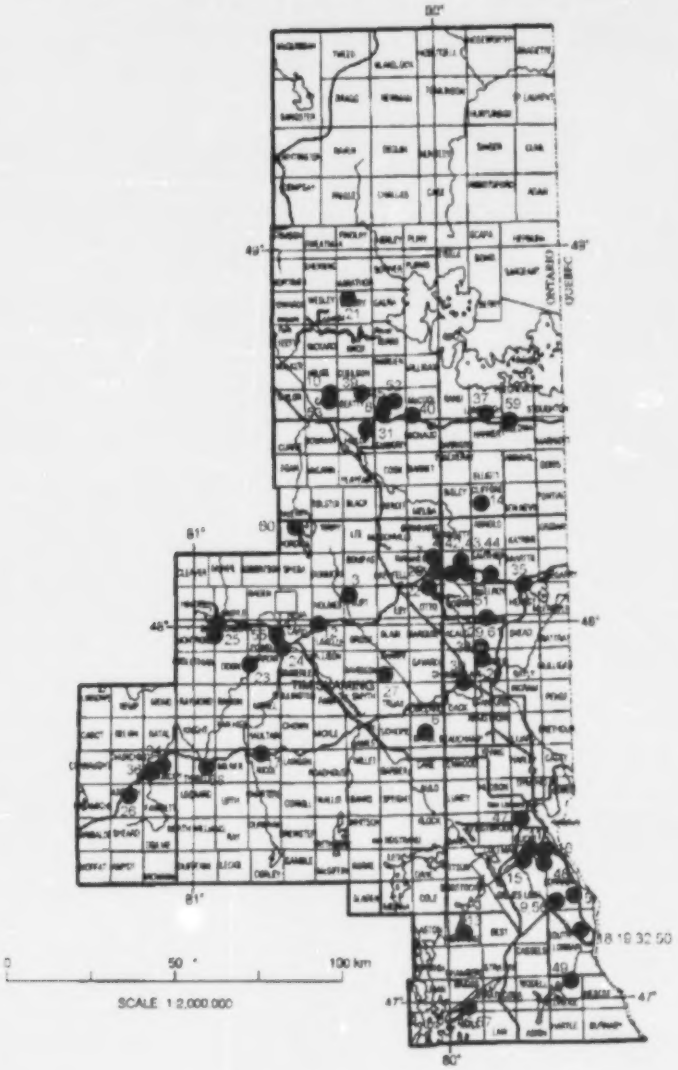
Producing Mines
1. Barrick Gold Corporation - Holt-McDermott Mine
2. Battle Mountain Gold Company and Teddy Bear Valley Mines Limited - Holloway Mine
3. Exall Resources Limited and Glimmer Resources Inc - Glimmer Mine
4. Extender Minerals of Canada Ltd - North Williams Township
5. Extender Minerals of Canada Ltd - Yarrow Mine
6. St Andrew Goldfields Ltd. - Hislop Mine

Quarries
1. Miller Minerals - Bucke Qu

Mills
1. Hedman Resources Ltd
2. Kinross Gold Corporation
3. SMC (Canada) Ltd

Figure 1. Mining and exploration in the Kirkland Lake Regional Resident Geologist's District -- 2000

KIRKLAND LAKE REGIONAL RESIDENT GEOLOGIST'S DISTRICT



LEGEND

● Property Visit - see Table 5

Figure 2. Property visits in the Kirkland Lake Regional Resident Geologist's District -- 2000

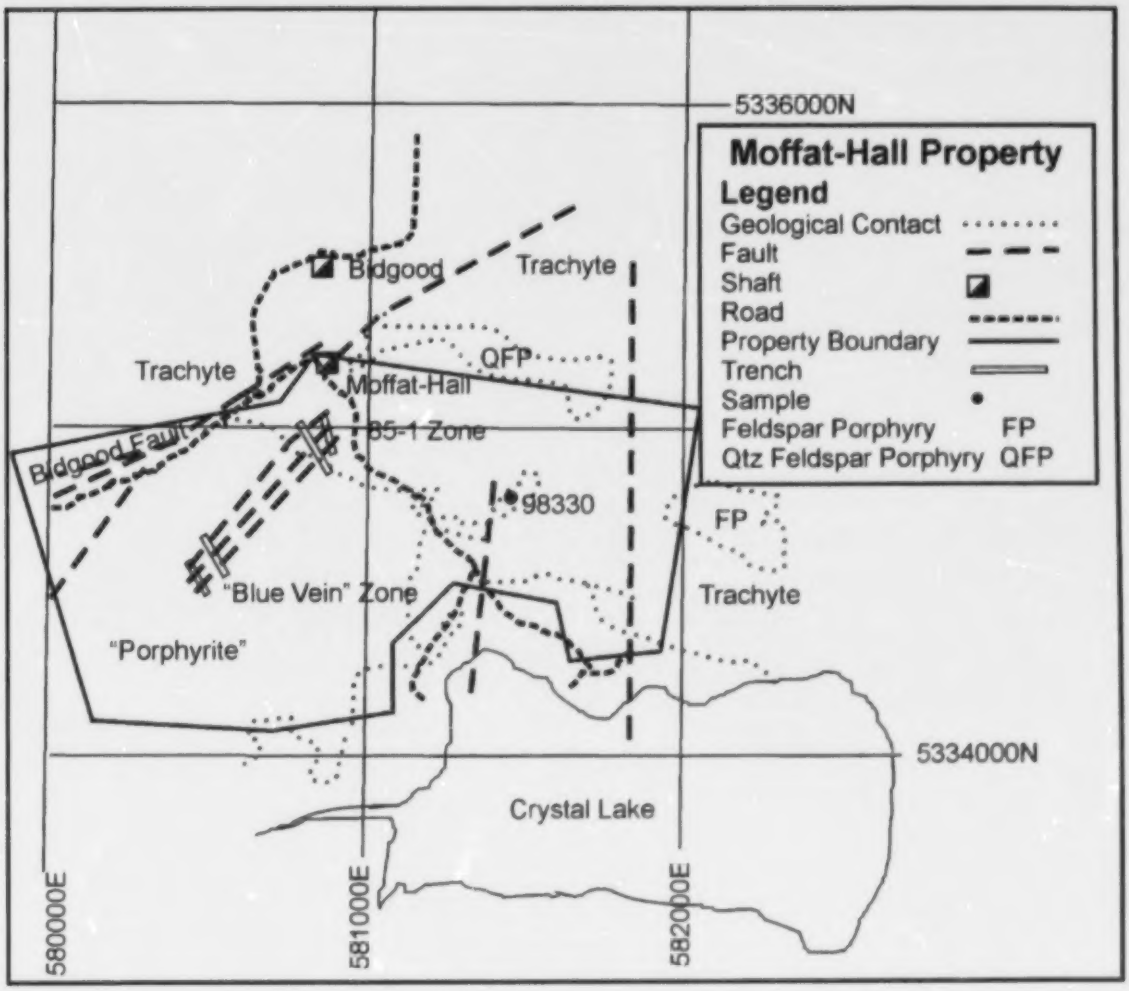


Figure 3. Simplified geology map showing recent exploration on the Moffat-Hall Property, Lebel Township.

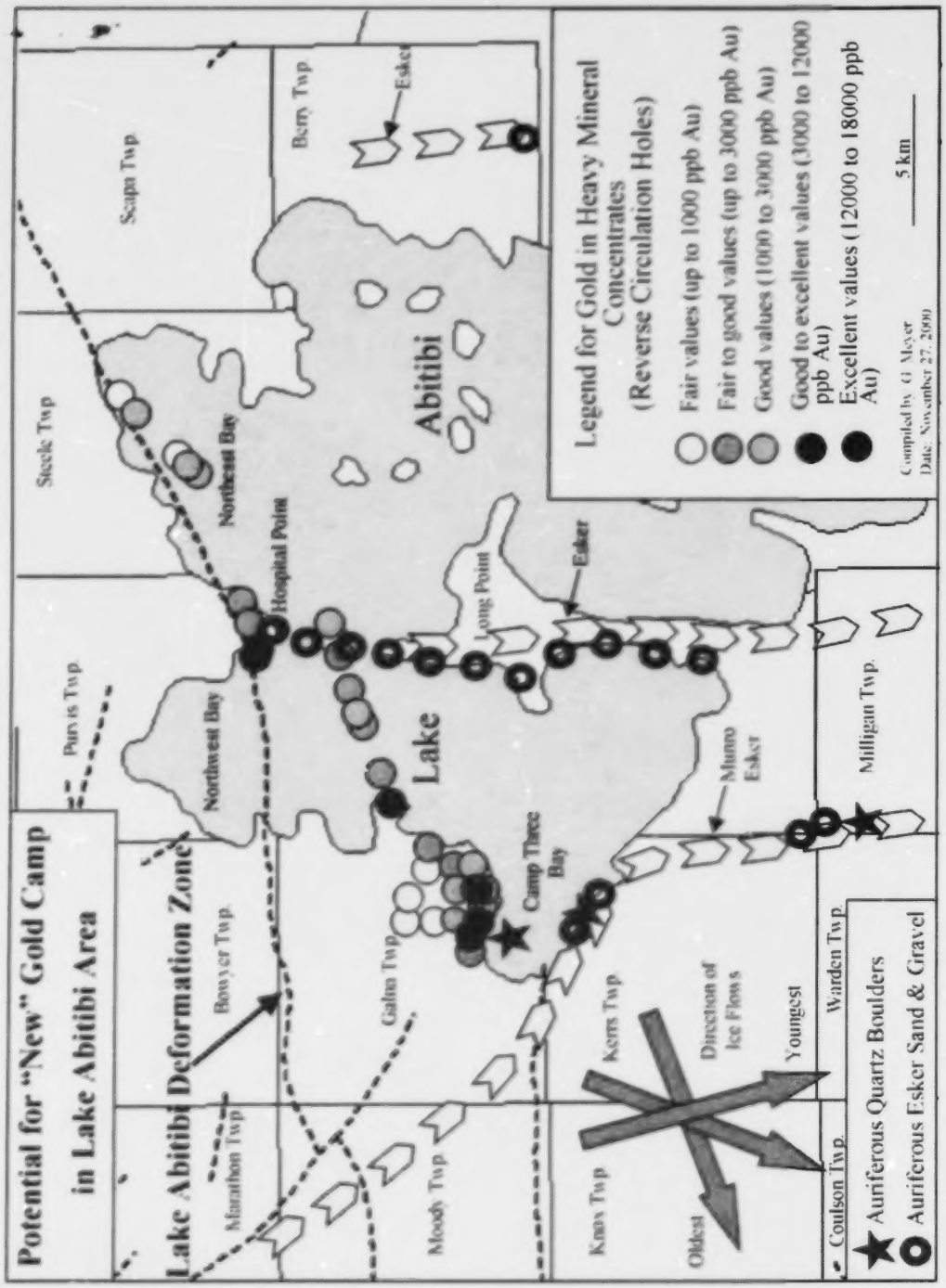


Figure 4. Potential for "new" gold camp in Lake Abitibi area

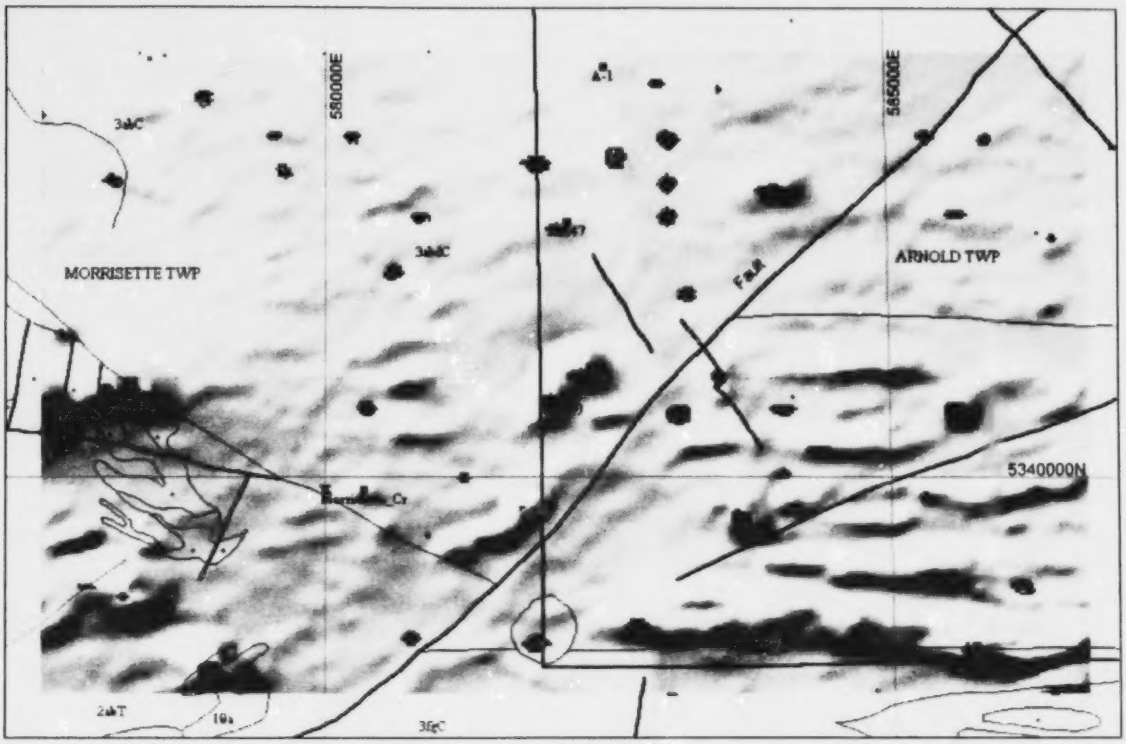


Figure 5. Shaded magnetic gridded data and Keating anomalies from OGS Data Set 1102 overlain by OGS Miscellaneous Release - Data 58. Negative Keating anomalies in black and positive in grey. The area shows the location of 5 kimberlite pipes, 4 of which have positive Keating anomalies.

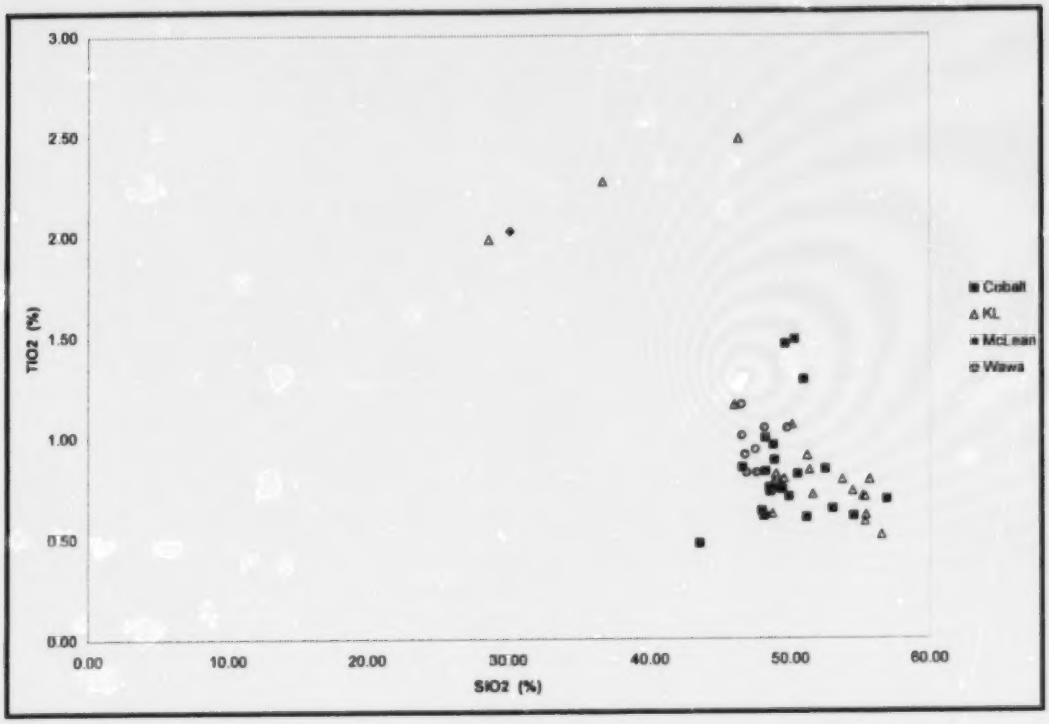


Figure 6. SiO2 vs TiO2 plot of Cobalt, Kirkland Lake and Wawa Area Lamprophyre and the McLean Kimberlite Pipe

Ontario

Ontario Geological Survey
Regional Resident Geologist Program

Kirkland Lake Regional Resident Geologist (Sudbury District)–2000

by

M. Cosec, C. Stephenson and M. Hailstone

2001

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Kirkland Lake Regional Resident Geologist (Sudbury District)–2000

M. Cosec[1], C. Stephenson[2] and M. Hailstone[3]

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INTRODUCTION

The Sudbury District Geologist office of the Resident Geologist Program includes the judicial districts of Sudbury, Manitoulin, Parry Sound, and Muskoka, and parts of Nipissing and the County of Renfrew. It encompasses approximately 45 000 square km and over 340 townships (Figure 1).

The production of nickel, copper, and related by-products by Falconbridge Limited and Inco Limited dominate mining activities in the Sudbury District. Overall metal production was down somewhat from the previous year, owing to labour difficulties at Falconbridge Limited and undercapacity at Inco Limited smelter and refinery operations.

At the end of 2000, a total of 10 693 mining claim units were recorded in the Sudbury Mining Division. This represents an increase of nearly 250 per cent from the previous year. Active claim units increased by 50 per cent (Table 1). This may represent the greatest number of mining claims under exploration in the Sudbury Mining Division in recent history.

Table 1. Summary of claims recorded and assessment work credits in the Sudbury District in 2000.

Year	Claims Units Recorded	Claim Units Cancelled	Claims Units Active	Diamond Drilling ($)	Physical Work ($)	Geotechnical* Work ($)	Total ($)
2000	10 693	3 313	22 433	NA	NA	NA	4 441 042
1999	3 094	2 469	15 215	NA	NA	NA	2 241 392
1998	2 445	3 815	13 056	NA	NA	NA	2 182 037
1997	3 411	2 648	11 257	NA	NA	NA	2 235 293
1996	2 512	1 548	7 934	398 135	279 359	200 631	878 125
1995	3 511	3 027	6 738	343 645	341 063	449 847	1 134 555

** As of 1992, Geological and Geophysical Survey data are combined as Geotechnical Work.*
NA - data not available.

Exploration expenditures in terms of assessment work submitted were $4 222 042 in 2000, an increase of nearly 100 per cent over the previous year.

The year 2000 was a banner year for exploration in the Sudbury District. Exploration activity by junior mineral exploration companies and individuals for platinum group elements (PGE) continued strong since the upturn experienced toward the end of 1998. This was precipitated primarily by a province-wide interest in PGE hosted in mafic intrusive rocks and the price of platinum and palladium reaching highs of US$619.00 and US$970.00 respectively toward the end of the year (Figures 3a, 3b).

Junior mineral exploration companies also focussed on the Sudbury Igneous Complex (SIC), predominantly on offset dikes on small past producing operations and relatively unexplored ground north of the SIC. Exploration for diamonds increased at the end of the year in the Marten River-Tilden Lake area, owing to publication of results of till geochemical surveys conducted under the Operation Treasure Hunt program funded by the Ontario Geological Survey (OGS) - Ministry of Northern Development and Mines.

The following companies opened local field offices in Sudbury in 2000: DeBeers Canada Limited, Mustang Minerals Corporation, Pacific Northwest Capital Corporation, Crowflight Minerals Limited, Aurora Platinum Corporation, and Wallbridge Mining Corporation. Teck Exploration Company Limited announced the closure of its North Bay office, effectively ending a three-quarter century presence in the area.

A note should be made with regards to terminology used in this report. The Sudbury Structure is a unique Proterozoic feature consisting of mafic and felsic intrusions of the Sudbury Igneous Complex (SIC), breccia and sedimentary rocks of the Whitewater Group inside this complex, and brecciated, shatter-coned country rocks of the Superior and Southern structural provinces that surround the SIC. The SIC and the Whitewater Group together form the Sudbury Basin.

MINING ACTIVITY

Nickel prices continued a slow but steady climb after hovering around a twelve-year low in late 1998. The average London Metals Exchange (LME) price of nickel was US$3.92 per pound in 2000 compared with US$2.73 per pound in 1999, a 44 per cent increase. The increase has been attributed in part to accelerated stainless steel production and a supply deficit resulting from production cuts, closures, Russian delivery problems, and labour difficulties (Figure 3d).

The average LME price of copper was US$0.82 per pound in 2000, compared with US$0.71 per pound in 1999, a 15 per cent increase (Figure 3c).

Falconbridge Limited and Inco Limited operated 16 underground mines in the Sudbury District in 2000 (Figure 4).

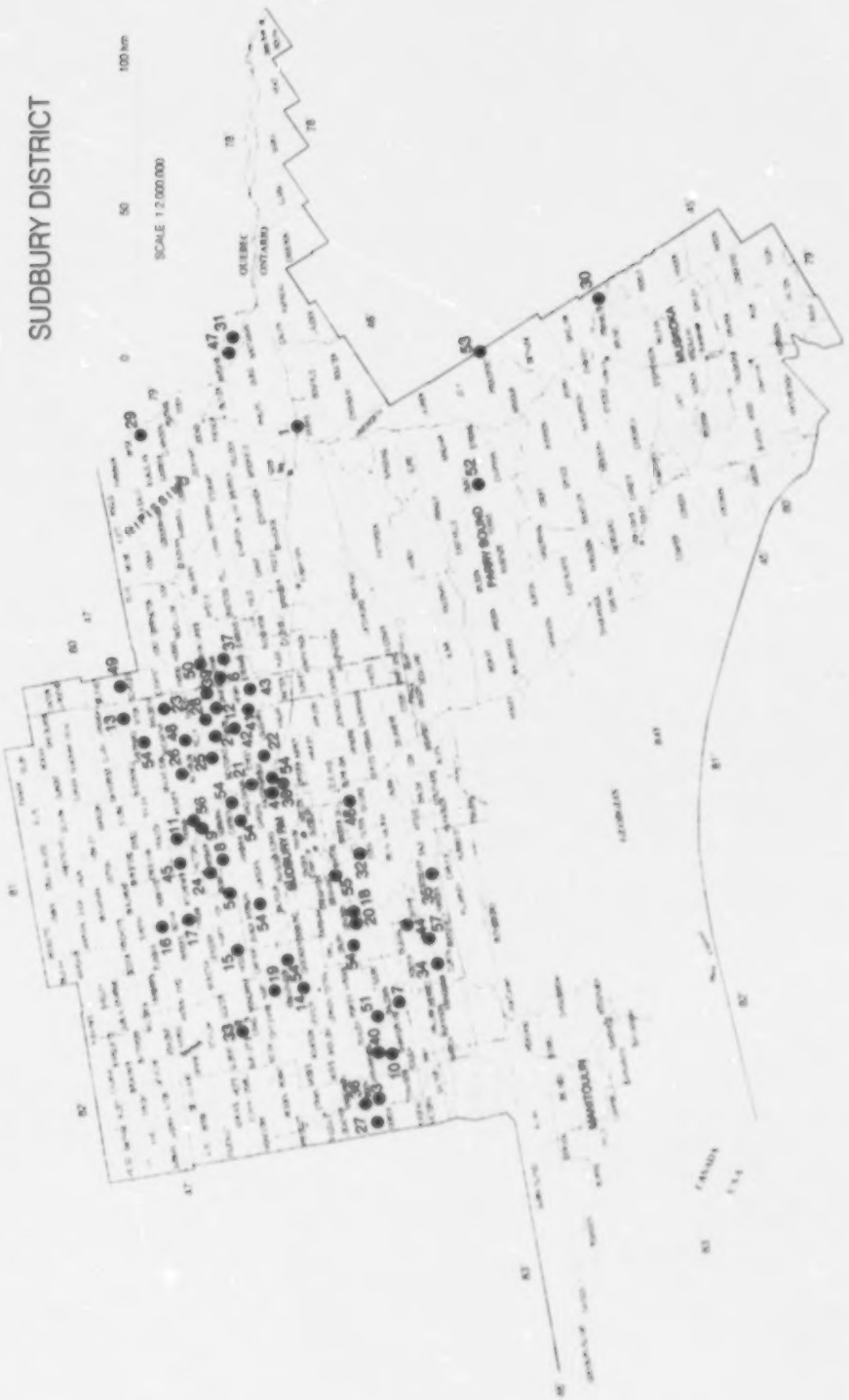


Figure 1. Sudbury District, exploration activity in 2000.

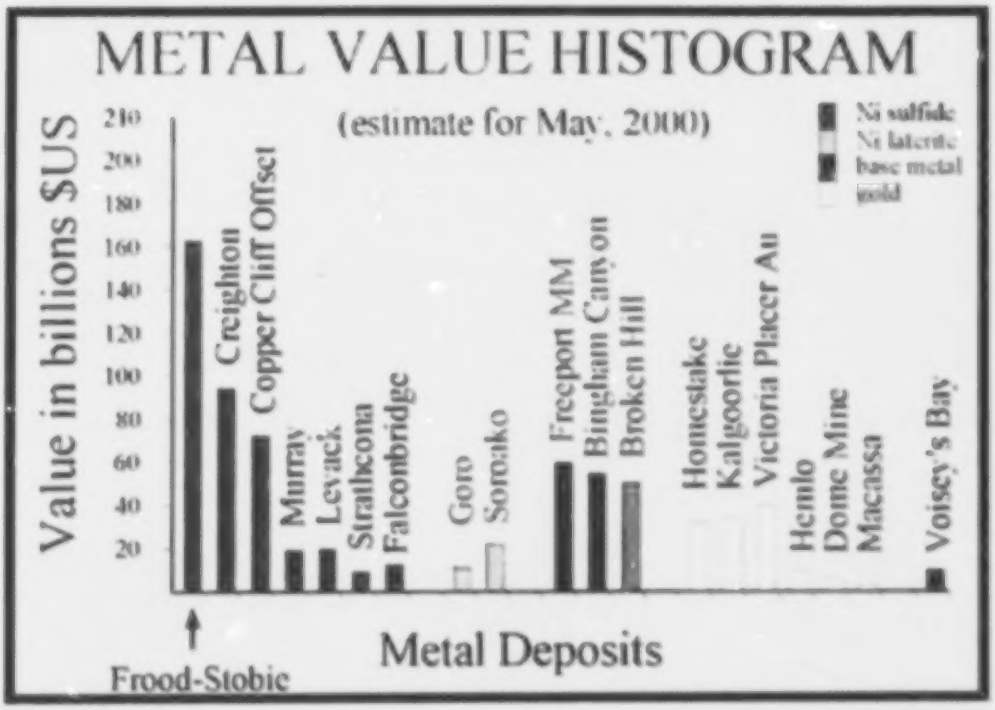


Figure 2. Metal value histogram, showing the dollar value of historical production and reserves for some of the Sudbury mines compared to other large mines worldwide (re-produced by permission of Wallbridge Mining Company Limited and Crowflight Minerals Incorporated).

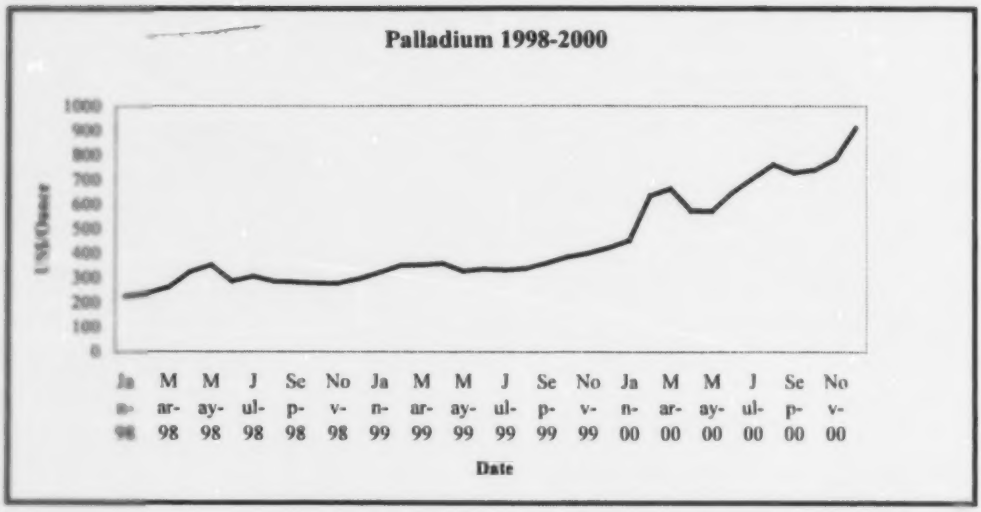


Figure 3a. Average monthly palladium prices from January 1998 to December 2000.

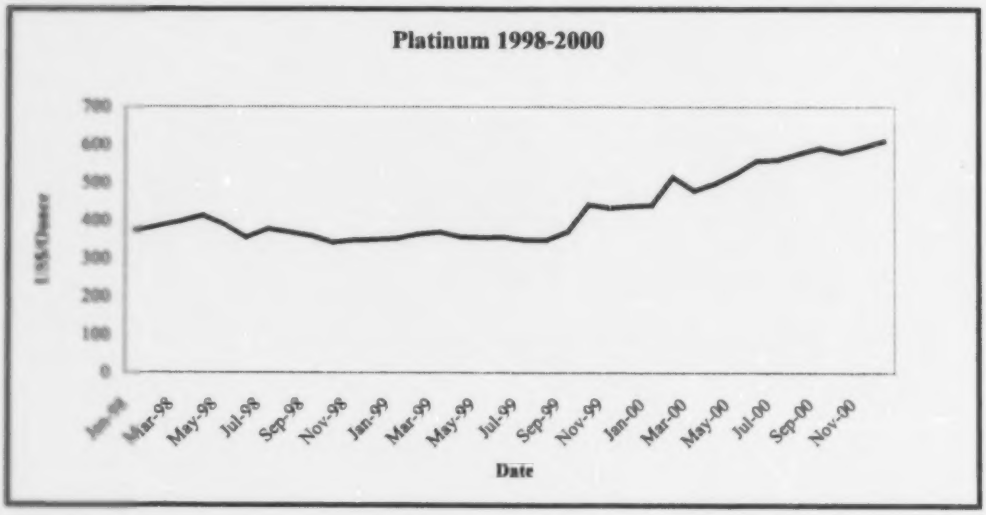


Figure 3b. Average monthly platinum prices from January 1998 to December 2000.

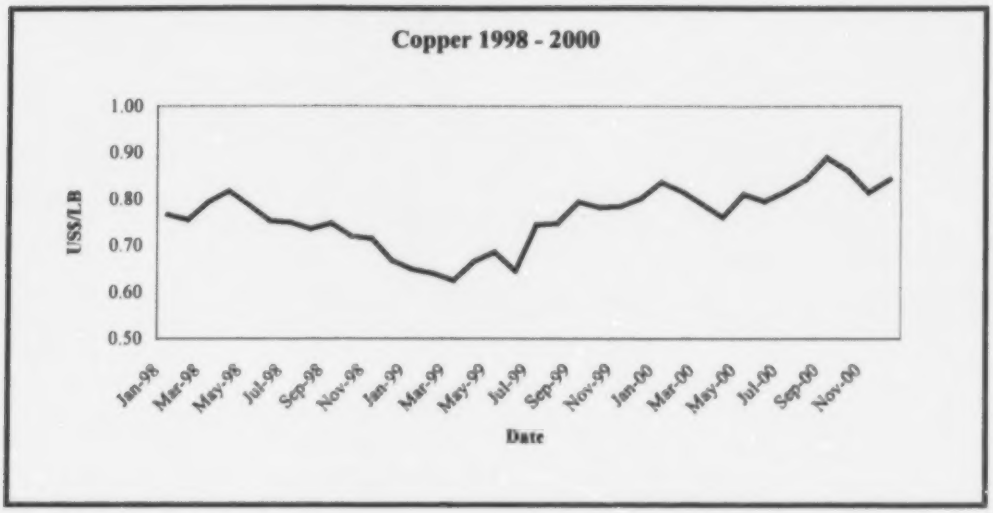


Figure 3c. Average monthly copper prices from January 1998 to December 2000.

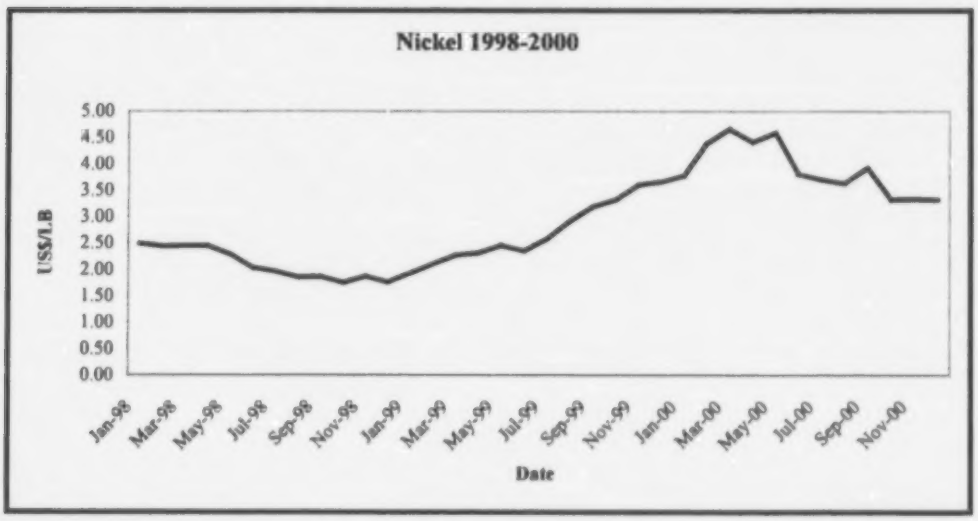
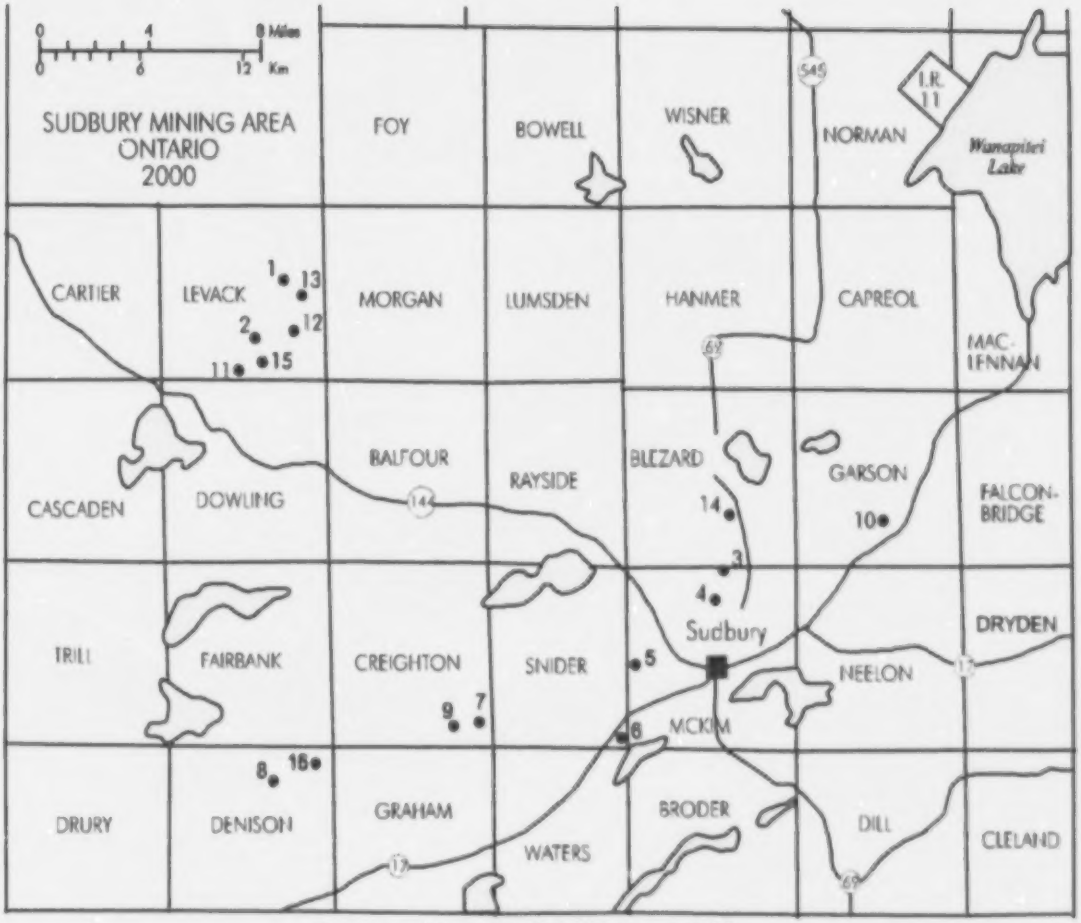


Figure 3d. Average monthly nickel prices from January 1998 to December 2000.



• Producing Mines (Ni, Cu, Precious metals)

Inco Limited

1 Lower Coleman
2 McCreedy East
3 Stobie
4 Frood
5 Copper Cliff North
6 Copper Cliff South
7 Creighton
8 Crean Hill
9 Gertrude
10 Garson

Falconbridge Limited

11 Onaping
12 Fraser
13 Strathcona
14 Thayer Lindsley
15 Craig
16 Lockerby

Figure 4. Producing mines in the Sudbury District in 2000.

Falconbridge Limited

Falconbridge Limited reported consolidated earnings of $368.3 million in 2000, compared to earnings of $153.1 million for 1999. This represents a record high profit for the company. The company's average realized prices for nickel and copper in 2000 were US$4.09 per pound and US$0.84, respectively. This compares to average realized prices for nickel and copper in the previous year of US$2.78 per pound and US$0.74 per pound, respectively.

Mine production from the company's Sudbury Division in 2000 was 2038 t nickel and 929 t copper, down from 8415 t nickel and 8682 t copper in 1999. The decrease was due to a strike by 1250 production and maintenance employees of Canadian Auto Workers/Mine Mill Union Local 598 on August 1, 2000. Since then, only the Craig and Fraser mines have been operating, and only at 20 per cent capacity. Lockerby, Thayer Lindsley, Onaping, and Strathcona mines did not operate (Figure 4). The smelter operated at 50 to 60 per cent capacity with feed from the company's Raglan Mine and local mine output (Falconbridge Limited press release, January 30, 2001). The strike was still ongoing at the time of writing.

Inco Limited

Inco Limited reported net earnings of US$400 million in 2000 compared with US$12 million the previous year. The company's average realized prices for nickel and copper in 2000 were $US4.09 per pound and US$0.87 per pound respectively, compared to US$2.91 per pound and US$0.74 for 1999.

Production figures from the Inco Limited Ontario Division were as follows: 8.3 million short tons raised to contain 278 million pounds of copper and 261 millions pounds of nickel (B. Thompson, Inco Limited, personal communication, 2001).

The company operated 10 mines, 2 mills, 1 smelter, 4 refineries, 3 sulphuric acid plants, 1 liquid sulphur dioxide plant, and 1 oxygen plant, producing 10 commodities (Figure 4).

The Gertrude open pit mine (Creighton West orebody) entered production early in 2000.

All ore from the Ontario Division is milled at the Clarabelle Mill, which has a rated capacity of 45 000 tons per day. The ore is upgraded from 1.2% Ni and 1.2% Cu to a combined total of 7% nickel-copper concentrate. The Copper Cliff Mill provides flotation facilities used to separate bulk nickel-copper concentrate produced by the Clarabelle Mill and upgrades it to 20% combined Ni+Cu. A precious metal and PGE refinery is located in Port Colborne, Ontario.

Inco Limited plans to produce 416 000 ounces of PGE in 2001 from its ores and purchased material, a 21 per cent increase over the 344 000 ounces it produced in 2000. Revenue from PGE was US$224 million in 2000, up 72 per cent from revenue of $130 million in 1999. Most of the PGE production comes from Sudbury ores (Inco Limited press release, January 18, 2001).

INDUSTRIAL MINERALS PRODUCTION

Several industrial mineral commodities were produced throughout the district in 2000. These include dolostone, silica, trap rock, flagstone, and sundry varieties of coloured landscaping aggregates. Numerous companies throughout the Sudbury District extracted considerable amounts of sand and gravel for various purposes.

Inco Limited

Inco Limited reopened its Lawson silica quarry in Curtin Township to supply additional flux to its Copper Cliff smelter. The material is a high-purity quartzite of the Paleoproterozoic Lorrain Formation of the Huronian Supergroup.

Lafarge Canada Incorporated

Lafarge Canada Incorporated quarried approximately 5 million tons of dolostone from its Meldrum Bay quarry on Manitoulin Island. Massive dolostones of the Paleozoic Amabel Formation are excavated in a single lift of approximately 50 feet. The material is classified as 70 per cent construction aggregate and 30 per cent metallurgical grade flux and filler.

Unimin Canada Limited

Unimin Canada Limited produced approximately 450 000 short tons of high-grade silica from the Paleoproterozoic Bar River Formation of the Huronian Supergroup on Badgely Island. The coarse silica is shipped to Midland, Ontario and Ashtabula, Ohio for further processing.

ADVANCED EXPLORATION

Falconbridge Limited

Underground diamond drilling continued at the Onaping Depth project and auxiliary zones at the Falconbridge Limited Craig Mine in Levack Township, on the North Range of the SIC. Work to date has established an indicated resource of 19.8 million t at 2.52 per cent nickel and 1.21 per cent copper, and an inferred resource of 0.9 million t at 3.70 per cent nickel and 1.44 per cent copper to 2600 m below surface.

Similar work at the Craig Depth project has established an inferred resource of 1.2 million t averaging 2.56 per cent nickel and 0.53 per cent copper (*Canadian Mines Handbook, 2000-2001*).

Inco Limited

Inco Limited conducted underground exploration at most of its operations throughout the year. The company allotted up to US$7.7 million in exploration expenditures for the Ontario Division in 2000, the highest in over a decade.

At the Copper Cliff North Mine, Inco Limited discovered an extension of the 138 orebody with exceptionally high-grade PGE values. Located 400 m north of the mine shaft, the deposit was brought into production in late 2000. It contains a proven resource of 300 000 t grading 16 g/t Pt+Pd+Au, 0.9 per cent nickel, and 4.5 per cent copper (Inco Limited press release, January 18, 2001).

At the Kelly Lake deposit, accessible underground through the company's Copper Cliff South Mine on an extension of the Copper Cliff offset dike in the South Range of the SIC, a resource of 10.5 million t grading 1.77 per cent nickel, 1.34 per cent copper, and 3.6 g/t Pt+Pd+Au has been defined. Feasibility studies to mine the deposit are currently underway.

Advanced exploration and development continued at the McCreedy East Mine in the North Range of the SIC in Levack Township. The project will involve the development of the Main and adjacent West orebodies containing 8 million t grading 1.88 per cent nickel and 0.84 per cent copper. This will increase McCreedy East Mine production to 4350 t per day from the current 2700 t per day when it is expected to be in full production by 2004. The mine is expected to produce 48 million pounds of nickel and 92 million pounds of copper, up from the current 29 million pounds of nickel and 82 millions pounds of copper annually. The mine is expected to last a minimum of 15 years (Inco Limited press release, June 7, 2000).

EXPLORATION ACTIVITY

Exploration activity in the district increased dramatically by approximately 250 per cent in 2000, owing to the interest in PGE and their substantial price increases over the year (Figures 3a, 3b). This was enhanced by the timely release of Ontario Treasure Hunt Program-funded data that verified the presence of kimberlite indicator minerals in the Marten River-Tilden Lake area, by the Ontario Geological Survey (Allan 2000; Tardif and Crabtree, 2000). Several junior mining companies were staking this area for diamond potential at the time of writing (Figure 1, Table 2).

Programs of note are detailed below.

Aquiline Resources Incorporated

Aquiline Resources Incorporated actively continued exploration for PGE mineralization in the East Bull Lake and River Valley areas.

The company's Parisien Lake project at East Bull Lake is a joint venture with Mustang Minerals Corporation and Freewest Resources Canada Incorporated. The property is located in the southern half of the East Bull Lake differentiated mafic intrusion and is underlain by the same prospective stratigraphy as Mustang Minerals Corporation's Bullfrog discovery located 5 km to the west. The mineralization is contact-type, hosted in inclusion leucogabbronorite within the Parisien Lake deformation zone. Previous lithogeochemical sampling by Freewest Resources Canada Incorporated and the Ontario Geological Survey returned assay values up to 5.8 g/t Pt+Pd+Au. Aquiline Resources Incorporated completed an

induced polarization (IP) geophysical survey followed by a ten-hole, 1288 m diamond drilling program. This work discovered a second zone of PGE mineralization in an anorthositic gabbro, dipping north and continuous over a strike length of 200 m. The best intersection returned assays of 5.32 g/t Pt+Pd+Au over 0.91 m (Aquiline Resources Limited press release, August 4, 2000).

In the River Valley area, the company conducted an IP geophysical survey on its holdings in parts of Dana, Crerar, Janes, and Henry townships. Six strong anomalies were defined (Aquiline Resources Limited press release, August 22, 2000). Additional geophysical surveys, followed by a program of diamond drilling is expected to commence in early 2001.

Aurora Platinum Corporation

Aurora Platinum Corporation explored for Ni-Cu-PGE mineralization on the Sudbury Structure with an emphasis on contact breccia, footwall breccia, and offset dike deposit types. The company holds the Foy and Footwall properties under option from Falconbridge Limited and, in addition, holds a 100 per cent interest in the North Range and Victoria properties.

The Foy property totals 2042 hectares and is located northwest of Sudbury, along the north range of the Sudbury Structure in Foy and Bowell townships. The property covers a portion of the Foy offset dike. Prospecting, geology, trenching, and ground geophysical surveys have been successful in delineating a number of significant Ni-Cu-PGE targets. A recent airborne geophysical survey has outlined a number of high profile magnetic and electromagnetic geophysical targets and has led to the interpretation that a footwall embayment of the SIC underlies the property. This resulted in the initiation of an 8000 m diamond drill program in early 2001 (Aurora Platinum Corporation press releases, December 21, 2000, January 10, 2001).

The Footwall property covers 1600 hectares and is located northeast of Sudbury along the South Range of the Sudbury Structure in Falconbridge Township. The property is located between the Garson and Norduna mines and is adjacent to the Falconbridge and Falconbridge East mines. Falconbridge is the operator of the project. An airborne geophysical survey has identified a number of strong near-surface conductors and deep geophysical targets. A program of ground geophysical surveys and winter diamond drilling is planned (Aurora Platinum Corporation press releases, December 21, 2000, January 10, 2001).

Aurora Platinum Corporation's North Range property totals 5840 hectares and is located approximately 30 km northwest of Sudbury. The North Range property is contiguous with the Foy property and overlies footwall rocks of the Sudbury Structure. Geological mapping, prospecting and geochemical surveys are planned (Aurora Platinum Corporation, written communication, January 21, 2001).

The Victoria property lies along the South Range of the Sudbury Structure, approximately 40 km southwest of Sudbury and totals 384 hectares. The exploration target is a high-grade Cu-Ni-PGE deposit similar to the Vermilion Mine (Aurora Platinum Corporation, written communication, January 21, 2001).

Crowflight Minerals Incorporated

Crowflight Minerals Incorporated has acquired by option and staking, a significant land package in the Sudbury area. Exploration is aimed at Ni-Cu-PGE mineralization associated with the Sudbury Offset dikes of the SIC. Holdings include the Kidd Copper Mines Limited (AER Nickel Corporation Limited) property, located in the Worthington offset dike in Denison Township. The Kidd property is a past producer with reported reserves of 786 000 tons averaging 0.76 percent nickel and 0.57 copper (J.M.

Patterson, Crowflight Minerals, written communication, December, 2000). The former mine hosts the Howland, Rosen, Robinson, and Gersdorffite orebodies. It was discovered sometime prior to 1890, and a patent was obtained by D. O'Conner in 1891 (Royal Ontario Nickel Commission Report, 1917, p. 44). Kidd Copper Mines Limited produced 230 279 tons of ore valued at $ 2 194 674 from two shafts in 1967 (Shklanka 1969). Milling operations ceased in 1968 (*Canadian Mines Handbook, 1969-1979*).

The Kidd property is located approximately 1.5 km from the new Inco Limited discovery at the Totten Mine. An exploration program has been initiated over the Kidd property by Crowflight to test for Ni-Cu-PGE mineralization at depth. This program includes ground geophysical surveys (magnetometer, VLF-EM), geological mapping, deep diamond drilling and associated downhole geophysics (pulse EM and UTEM). In addition, Crowflight Minerals Incorporated is conducting AMT (audio magneto telluric) surveys over the property. The AMT survey method has been credited with the recent discoveries of the Totten and Kelly Lake deposits by Inco Limited (J.M. Patterson, Crowflight Minerals, written communication, December, 2000).

Crowflight has reported the intersection of significant mineralization from diamond drilling on the Kidd property (Crowflight Minerals Incorporated press release, December 4, 2000). Diamond drill holes AER 007 and AER 007A (a wedge from AER 007) cut mineralization between 980 and 1078 m depth. Hole AER 007 was sunk to test an AMT anomaly thought to be associated with a mineralized section of the Worthington Offset dike. Hole AER 007 intersected the Worthington dike from 1011 to 1083 m and contained sub-economic disseminated pyrrhotite and chalcopyrite mineralization. Within this 72 m section, higher grade sections were intersected with the best assay being 0.83% Cu, 1.20% Ni and 0.6 g/t PGM over 2.01 m. A subsequent downhole EM survey from hole AER 007 indicated a strong offhole EM anomaly, and hole 007A was wedged from hole AER 007 to test the anomaly. Hole AER 007A cut the Worthington dike from 951.4 to 1040.2 m. A 46 m section from 975 to 1021 m contained pyrrhotite, chalcopyrite and pentlandite mineralization. The best assay results from this section were 1.02% Cu, 0.14% Ni and 0.3 g/t PGM over 1.7 m and 1.19% Cu, 0.27% Ni and 0.92 g/t PGM over 8.9 m. Shorter, more massive mineralized sub-sections are present within these sections with the best one assaying 6.23 g/t PGE over 0.55 m. A second wedged hole (AER 007B), located 25 m up-dip from hole AER 007A, intersected sub-economic mineralization over a 32 m section. This section contained about 75 per cent unmineralized amphibolite inclusions in a mineralized quartz diorite matrix (Crowflight Minerals Incorporated press release, December 27, 2000).

The company is also active in Falconbridge Township where they have entered into an option agreement with Millstream Mines Limited to earn a 50 per cent interest in the Airport property. The Airport property is located on the eastern side of the SIC, within 3 km of Inco Limited 's Victor deposit. A total of three diamond drill holes were completed to test IP anomalies on the Airport property and the company reports that all three encountered minor sulphides in favourable geology (Crowflight Minerals Incorporated press release, December 27, 2000).

Falconbridge Limited

Falconbridge Limited continued diamond drilling at its Norman West project, in the northeast corner of the Sudbury Igneous Complex. The company has established an inferred mineral resource of 7.6 million tonnes grading 1.59% nickel and 1.28% copper. The property is immediately west of the Inco Limited Whistle Mine property (*Canadian Mines Handbook 1999-2000*).

Labour difficulties in the second half of 2000 prompted the company to focus its exploration endeavours outside the SIC. Particular attention was given to mafic intrusive rocks in Lockeyer and Mandamin

townships, immediately north of the East Bull Lake differentiated complex (P. Binney, Falconbridge Limited, personal communication, 2000).

Flag Resources (1985) Limited/Golden Briar Mines Limited

Flag Resources (1985) Limited and Golden Briar Mines Limited continued their long term exploration program east of Wanapitei Lake, in the vicinity of the Wanapitei magnetic anomaly, one of the largest positive magnetic anomalies of the Canadian Shield.

A total of 49 diamond drill holes for an aggregate of 11 422 feet were completed near the Rathbun Lake PGE occurrence in Rathbun Township. The area is underlain by Nipissing gabbronorite. Several of the drill holes intersected anomalous PGE values. Hole RL-00-53 returned assay values of 0.72 g Pt+Pd+Au over a width of 15 feet, including 1.01 g/t Pt+Pd+Au over a width of 1.5 feet. An IP survey conducted 3000 feet south of the Rathbun Lake occurrence identified a zone of surface mineralization of up to 3 per cent chalcopyrite (M.C. McLeod, Flag Resources (1985) Limited, personal communication, 2001).

The companies also conducted downhole geophysical surveys to a depth of 2900 feet at the Cobalt Hill cobalt and base metals occurrence, and a single diamond drill hole to a depth of 535 feet at the nearby Jess Lake sulphide occurrence. Both occurrences are located in Mackelcan Township. The hole intersected 85 feet of disseminated pyrite with anomalous gold values hosted in soda-metasomatized Lorrain Formation arkose.

Freewest Resources Canada Incorporated/Sparton Resources Incorporated

Freewest Resources Canada Incorporated and Sparton Resources Incorporated continued exploration for PGE mineralization over their joint venture Folson Lake property in 2000. The Folson Lake property totals 320 hectares and is situated in Gerow Township, 80 km west of Sudbury. The property covers part of the East Bull Lake mafic intrusion.

The 2000 mapping program has extended the strike length of anomalous PGE-Cu-Ni mineralization from 200 m to at least 1700 m with widths varying from 25 m to 75 m. The mineralization first identified on surface during 1998 and by drilling in 1999 is hosted by an inclusion-bearing zone near the base of the East Bull Lake intrusion. A trenching program during 2000 was successful in the discovery of two new showings, the 43 Gram Zone and the Garden Zone. The 43 Gram Zone was the site of a 43 gram grab sample and returned an average of 2.1 g/t Pt+Pd+Au over a width of 15 m. The Garden Zone returned an average of 1.2 g/t Pt+Pd+Au over a 50 m width. The average values from 208 samples taken from within the mineralized inclusion bearing zone are 2.06 g/t Pt+Pd+Au, 0.2% Cu and 0.06% Ni (Freewest Resources Incorporated press release, October 12, 2000).

In October, 2000 the two companies announced the commencement of a 3000 m diamond drilling program on the Folson Lake property. By the end of November, 2000, 1800 m had been drilled in 17 holes (Freewest Resources Incorporated press release, November 24, 2000). Assay results from the drilling program have proven to be encouraging with assays of 0.59 g/t PGE over 61 m, 1.09 g/t PGE over 15 m, 0.90 g/t PGE over 9 m and 0.74 g/t PGE over 40 m (Freewest Resources Incorporated press release, December 8, 2000).

Inco Limited

An extensive exploration program in the vicinity of the formerly producing Totten Mine has discovered inferred resources of 8.4 million tonnes grading 1.42 per cent nickel, 1.90 per cent copper, and 4.7 g/t PGE. The deposit is still open at depth. The estimate includes 1.6 million tonnes grading 1.25 per cent nickel, 1.61 per cent copper, and 5.7 g/t PGE. The Inco Limited Ontario Division currently mines ore with average grades of 1.41 per cent nickel, 1.40 per cent copper, and 1.8 g/t PGE. Exploration diamond drilling will continue to follow the mineralized body to the south and at greater depth where metal grades appear to be increasing. Recent diamond drill results include 13.7 m averaging 1.76 per cent nickel, 1.74 per cent copper, and 3.6 g/t PGE; and 7.3 m averaging 2.6 per cent nickel, 4.8 per cent copper, and 4.9 g/t PGE. Several new target areas, which may contain further high-grade resources, have been identified by geophysics and will be tested by diamond drilling in 2001. An evaluation of the economic feasibility of mining the Totten deposit is expected to be completed by the end of the summer, 2001.

Pump Lake, a new deposit consisting of three zones situated about 2500 m north of the Copper Cliff North Mine shaft, also has excellent potential. Exploration diamond drilling to date has outlined a total indicated resource of 3.5 million tonnes averaging 1.4 per cent nickel, 1.0 per cent copper, and 1.5 g/t Pt+Pd+Au. Included in this total is the East Flank zone which contains 0.23 million tonnes averaging 3.2 per cent nickel, 1.5 per cent copper, and 5.9 g/t Pt+Pd+Au. Further diamond drilling is expected to increase this resource (Inco Limited press release, January 18, 2001).

Mustang Minerals Corporation

Mustang Minerals Corporation continued exploring for PGE mineralization at its East Bull Lake and River Valley properties during 2000. The company was also active in acquiring claims for diamond exploration in the Marten River-Tilden Lake area.

In the last quarter of 1999, Impala Platinum Holdings Limited and Mustang Minerals Corporation announced the formation of the "Mustang-Implats River Valley Joint Venture". An agreement was finalized under which Impala Platinum Holdings Limited can earn a 60 per cent interest in the River Valley PGE property by spending $6 million on the property over 5 years and making cash payments of $255 000 over 4 years (Mustang Minerals Corporation press release, December 14, 1999). During 2000 the companies spent approximately $1 million on both areas. Mustang Minerals Corporation is the operator.

The River Valley property comprises over 600 mining claim units of prospective PGE horizon along the north and south margins of the Paleoproterozoic River Valley differentiated mafic intrusive complex. The joint venture completed a comprehensive exploration program, consisting of geological mapping, lithogeochemical sampling, ground magnetometer and induced polarization geophysical surveys. The program was completed between October 1999 and October 2000 and resulted in the identification of drill targets along the north and south contacts of the intrusion. Following up on this first stage, a two phase, 17 000 m diamond drill program commenced in November 2000.

In a February 8, 2001 press release Mustang provided the following update to its on-going diamond drill program at River Valley.

> "The first 12 holes were successful in establishing the presence of a distinct mineralized system and local zones of high grade mineralization. Drill holes targeted the "chaotic layer", a stratiform gabbroic rock unit running parallel to the 4.5 km north contact of the intrusion. The widely spaced

holes were drilled along a 1km strike length in the southeast part of the north grid. The dip of the zone varies from 70 degrees to 45 degrees north. All holes intersected PGE enriched in sulfide mineralization. Hole 12 intersected a discrete olivine gabbronorite layer below the chaotic layer that assayed 9.15 g/t Pt+Pd+Au over 1 m. A check assay on this interval assayed 5.98 g/t Pd, 4.59 g/t Pt, and 0.12g/t Au."

The East Bull Lake property covers approximately 90 per cent of the East Bull Lake differentiated mafic intrusive complex, located 80 km west of Sudbury. The property consists of over 600 mining claim units. In November 2000 Falconbridge Limited made a $1 million private placement to Mustang Minerals Corporation. Falconbridge Limited has an option to earn a 50 per cent interest in the north part of the East Bull Lake property by funding an additional $5 million in exploration expenditures over a period of 4 years. Mustang has been actively exploring the property since the fall of 1998. To date 32 holes have been drilled at three areas of the property.

At the Bullfrog Zone at East Bull Lake, geological mapping and sampling indicated the presence of values of up to 16.48 g/t Pt+Pd+Au over a strike length of 700 m. An induced polarization geophysical survey outlined a broad response immediately south of this zone. To date, 11 widely spaced holes have tested this area. All holes drilled at the Bullfrog Zone intercepted the mineralized layer, which remains open in all directions. Values as high as 2.53 g/t Pt+Pd+Au over 12.0 m were encountered in drill hole ME-00-19.

During the 2000 field season, an active geological mapping and lithogeochemical sampling program was implemented to cover approximately 20 line km of the prospective contacts of the East Bull Lake intrusion with the country rock. The work has outlined several drill targets. A planned work program includes an airborne geophysical survey, additional geological mapping, lithogeochemical sampling, trenching, and drilling.

The Drury PGE property, located 40 km west of Sudbury, covers 26 mining claim units. The property is adjacent to claims controlled by Inco Limited. Mustang can earn a 50 per cent interest in the property from Wallbridge Mining Company Limited by spending $500 000 on the property over 4 years.

The Drury property is located in footwall rocks along the southwest corner of the Sudbury Igneous Complex (SIC) and hosts part of the Drury mafic intrusion. Exploration is targeted at contact-type primary Ni-Cu-PGE mineralization. An additional target is primary Ni-Cu-PGE mineralization in the footwall breccia. Mustang has completed 28 km of linecutting and ground magnetometer geophysical surveys and commenced geological mapping on the property. An induced polarization geophysical study will be completed by the spring of 2001 (M. Hailstone, Ontario Geological Survey, 2001).

Pacific Northwest Capital Corporation

(The following is an invited submission by L.S. Jobin-Bevans, JB Exploration & Development Incorporated, Sudbury, Ontario, consulting geologist for Pacific Northwest Capital Corporation. All reported samples were collected by the author and analyzed on behalf of Pacific Northwest Capital Corporation.)

The year 2000 was an exceptionally busy year for Pacific Northwest Capital Corporation (PFN), with continued PGE exploration in areas both east and west of the Sudbury Igneous Complex. Currently (February 2001) PFN has 10 active PGE-Cu-Ni exploration projects in the Sudbury area that include eight Nipissing diabase targets and two large layered intrusions of the East Bull Lake suite. Much of the

approximately $2 million spent on exploration in the year 2000 was directed towards the River Valley and Agnew properties, located about 60 km northeast and 70 km southwest of Sudbury, respectively. The River Valley project is fully funded by Anglo American Platinum Corporation Limited (Anglo Platinum), the world's largest platinum producer and part of the world's largest mining company, Anglo American plc. PFN has an approved $2 million budget for further work on Anglo Platinum funded targets in the Sudbury area for the year 2001.

RIVER VALLEY PROPERTY

In 2000, PFN completed a phase 2 surface exploration program and 3 phases of diamond drilling totalling 6780 m in 40 holes. The phase 2 surface program was aimed at delineating the northern contact of the River Valley differentiated mafic intrusive complex. Exploration consisted of grid cutting, geophysical surveys, regional mapping and prospecting, and detailed mapping and lithogeochemical sampling of newly cleared areas. The phase 2 surface exploration concentrated in the region north of the Road Zone at the Dana Lake area and at Lismer's Ridge, located about 1.3 km southeast of the South Zone. To date, known PGE are associated with disseminated Cu-Ni sulphide mineralization that is hosted by an extensive breccia unit, occurring proximal to the intrusive contact.

The River Valley property includes three main areas of PGE-Cu-Ni sulphide mineralization: the Dana Lake area, Lismer's Ridge, and Azen Creek Area. The Dana Lake area, located within the northwest corner of the claim group, consists of 7 main areas, *viz*. north to south: L700N, L600N, Road Zone (includes Road Zone east), North Zone (includes North Zones 1, 2, and 3), Central Zone, Trench Zone, and South Zone. These 7 zones of PGE-Cu-Ni mineralization extend intermittently over a strike length of over 900 m. At Lismer's Ridge, surface mineralization is intermittently exposed over a northwest strike length of over 800 m, where it occurs within a similar geological environment to the Dana Lake area. At the Azen Creek area, located about 6.0 km southeast of the Dana Lake area, breccia-hosted mineralization is exposed in outcrop, located approximately 200 m south of the intrusive contact. The mineralization at the Azen Creek main showing represents a different style of mineralization than at Dana Lake area or Lismer's Ridge.

The programs were designed to explore the bulk tonnage potential for PGE-Cu-Ni sulphide mineralization identified by PFN through detailed surface sampling in 1999-2000. In general, mineralization is composed of 1 to 5 per cent sulphides that include, in order of decreasing abundance, chalcopyrite, pyrrhotite, pentlandite, and pyrite. PGE are associated with sulphide mineralization that is hosted within a coarse heterolithic breccia unit that is up to 100 m or greater in thickness and occurs within approximately 100 m of the intrusive contact. The breccia is dominated by fragments of pyroxenite, melagabbro, gabbro, and leucogabbro that are 1 m or greater in diameter and are generally hosted by a melagabbro-gabbro matrix. Locally, the mineralization is accompanied by a characteristic blue quartz.

AGNEW PROPERTY

In August, PFN announced that they had entered into an agreement with New Millennium Minerals Corporation whereby PFN can acquire half of the latter company's interest in the Agnew property, which overlies the Shakespeare-Dunlop (or Agnew Lake) differentiated mafic intrusive complex. This complex is similar in age and composition to the River Valley intrusive complex and also carries substantial PGE values.

The primary focus of the phase 1 surface exploration program was to identify contact-style PGE mineralization, similar to that found at the River Valley property. The Agnew Property includes six main Pt-Pd-Rh-Au-Cu-Ni sulphide showings: 1. A-Zone, located along the western margin of the intrusion; 2. B2-Zone, located along the northwest portion of the intrusion; 3. B-Zone, located in the northwest corner of the intrusion; 4. C-Zone, located along the northern contact of the intrusion; 5. D-Zone, located along the northern contact, approximately 2 km east of the C-Zone; and 6. Mong Lake Zone, located along the southern contact of the intrusion.

The phase 1 program included linecutting, regional prospecting, lithogeochemical sampling, stripping, and IP and ground magnetometer geophysical surveys. Regional prospecting confirmed the presence of anomalous PGE sulphide mineralization in areas previously identified by BP Canada Incorporated (ca. 1988-1990) and New Millennium Metals Corporation. The highest value from surface sampling was 5.61 g/t Pt+Pd+Au, collected from the B2-Zone. Samples from a 2.5 m x 2.5 m detailed grid returned anomalous values with the highest surface sample assaying 2.46 g/t Pt+Pd+Au. Based upon the encouraging results of the 2000 exploration program, a comprehensive phase 2 exploration program, including diamond drilling, is planned for 2001.

JANES PROPERTY

In February, PFN announced the results from a phase 2 diamond drilling program on its Janes Township property (option from Goldwright Explorations Incorporated), a Nipissing diabase target situated approximately 50 km northeast of Sudbury. Mineralization is known to occur proximal to the lower contact of a Nipissing diabase intrusion where it is associated with a distinct high-magnesium gabbroic unit. Locally, mineralization occurs within a sedimentary rock - gabbro brecciated contact and/or sulphide breccia. The 2 phases of drilling demonstrated that mineralization extends down-dip from surface showings (Main Trench) for at least 140 m and is open to depth.

Of particular interest in this program was hole JR99-19. This hole intersected sedimentary rock - gabbro breccia containing disseminated and massive sulphides, including a 0.30 m intersection of near-massive chalcopyrite-pentlandite-pyrrhotite mineralization. This mineralization is proximal to, and up-dip from, an intersection reported in 1968 by Kennco Explorations (Canada) Limited that subsequently assayed 1.86% Cu, 1.51% Ni and 1.8 g/t Pt+Pd+Au over a width of 7.9 m. Hole JR99-16 demonstrates that PGE-bearing sulphide mineralization extends southward on the property and can increase in concentration at depth. The sulphide intersection in hole JR99-16 (1.2 g/t Pt+Pd+Au over a width of 11.90 m) is 22 m down-dip of an intersection in hole JR99-09 (0.6 g/t Pt+Pd+Au over a width of 4.64 m). The increase in PGE concentration suggests that the zone of PGE-enrichment occurs beneath the surface showings in the south end of the property. Moreover, it suggests that PGE values comparable to those from the Main Trench and holes such as JR99-01 and JR99-11 from phase 1 drilling may extend further down dip from hole JR99-16, and below previously drilled hole JR99-05. The latter hole is located 32 m south of hole JR99-16.

MISCELLANEOUS PROJECTS

In addition to its main projects at River Valley and Agnew Lake, PFN completed a drill program on its Davis-Kelly property (Nipissing diabase target), located approximately 45 km northeast of Sudbury. Further surface exploration was also carried out on the Frontier and Washagami claims in Davis Township, and on the Kelly property (option from Goldwright Explorations Incorporated). In April, PFN announced its option (from Gordon Salo) on the Lac Panache property located in Dieppe and Truman Townships, 40 km southwest of Sudbury. The property contains polymetallic mineralization (Cu, Ni, Co,

Au, Pd, Pt) in diverse geological settings. Numerous mineral showings have been identified. An airborne electromagnetic survey has delineated several extensive conductors, some coincident with known showings. Values up to 1.7 g/t Pt+Pd+Au were only recently discovered in gabbroic rocks (Nipissing diabase) on the property. PFN completed prospecting, stripping, trenching, and lithogeochemical sampling programs on the property in 2000, principally focussing on the property's PGE potential.

Ursa Major Minerals Incorporated

During the past year, Ursa Major Minerals Incorporated has acquired by means of option agreements, 2 properties in the Sudbury area. Both are situated west of Sudbury in the Shakespeare-Dunlop (Agnew Lake) differentiated mafic intrusive complex.

The Ursa Major Minerals Incorporated Porter project amounts to 1088 ha in Porter Township, approximately 50 km west of Sudbury. Recent work has outlined a mineralized zone over a width of approximately 15 m with a strike extent of 30 m. Channel sampling from this mineralized zone returned assays of up to 8.5 g/t Pd, 1.2 g/t Pt, and 0.34 g/t Au over a width of 1.0 m (Ursa Major Minerals Incorporated press release, February 4, 2000).

Under the terms of an option agreement with Falconbridge Limited, Ursa Major Minerals Incorporated can earn a 51 per cent interest in the Sudbury-Shakespeare property, located in Shakespeare Township, approximately 60 km west of Sudbury and consisting of 28 leased and patented claims. The Shakespeare deposit is estimated by Falconbridge to contain an inferred resource of 2.1 million tonnes grading 0.36% Ni, 0.42% Cu, 0.44 g/t Pd, 0.40 g/t Pt, and 0.22 g/t Au (Ursa Major Minerals Incorporated press release, June 6, 2000). Channel sampling on the Sudbury-Shakespeare property by Ursa Major has outlined a mineralized zone with widths of up to 46 m over a strike length of 366 m. The mineralized zone has a weighted average assay value from 108 channel samples of 0.41 g/t Pd, 0.38 g/t Pt, 0.20 g/t Au, 0.36% Cu, 0.23% Ni and 0.016% Co (Ursa Major Minerals Incorporated press release, November 7, 2000). In addition to the channel sampling, induced polarization, resistivity, and ground magnetometer geophysical surveys have been successful in outlining a number of targets within gabbroic rocks along strike and parallel to the zones of known mineralization (Ursa Major Minerals Incorporated press release, January 18, 2001).

Wallbridge Mining Company Limited

Wallbridge Mining Company Limited has a large land position within and adjacent to the Sudbury Igneous Complex (SIC). The focus of exploration is the discovery of high-grade Cu-Ni-PGE deposits in the Sudbury breccia and offset dike environments. This local company was privately funded until July 2000, when it obtained a listing on the Toronto Stock Exchange.

The company's Creighton South property is located approximately 1.4 km south of the Inco Limited Creighton Mine in Graham and Waters townships. It overlies zones of thermally metamorphosed Sudbury breccia and melt rock. Approximately half of the property is owned 100 per cent by Wallbridge Mining Company Limited, with the other 50 per cent in a joint venture agreement with Falconbridge Limited. Wallbridge have completed airborne and ground geophysical surveys followed by deep diamond drilling of the property. Although this work has not as yet encountered economic mineralization, it has been successful in identifying and testing conductive bodies at depths in excess of 1500 m below surface.

The Parkin property of Wallbridge Mining Company Limited is located over a portion of the Parkin offset dike in Parkin and Norman townships. Under the terms of an agreement with Falconbridge Limited, the company has the option to earn a 50 per cent interest in the property. Recent diamond drilling has been successful in confirming continuity of mineralization, with mineralized zones open at depth and to the north. The work has also been successful in outlining a new style of mineralization with low sulphide tenor, high Cu/Ni ratios, and enriched PGE mineralization. Assay results and intersections from two drill holes are reported as 5.65 g/t TPM (total precious metals) (2.46 g/t Pt, 1.60 g/t Pd) over a width of 14.14 m, and 3.02 g/t TPM (0.79 g/t Pt, 1.96 g/t Pd) over 18.7 m (Wallbridge Mining Company Limited press release, November 7, 2000). Further near-surface definition drilling is planned for 2001. A recent downhole geophysical survey has indicated the existence of a large conductive body to the south of one of these mineralized zones and a program of deep diamond drilling consisting of 5 vertical drill holes (6 000 m total) with the aim of providing sites for downhole geophysics is in progress (Wallbridge Mining Company Limited press release, January 15, 2001).

The Milnet property is held by Wallbridge Mining Company Limited outright and encompasses 8 leased claims totaling 128 ha overlying a portion of the Parkin offset dike in Parkin Township. It is located approximately 1 km north of the Parkin property. The property covers the past producing Milnet Mine with production reported as 142 517 tonnes grading 1.49% Ni, 1.54% Cu, 2.25 g/t Pt, 2.98 g/t Pd, and 0.84 g/t Au by Milnet Mines Limited from 1952 to 1954, with a value of approximately $4.3 million (Wallbridge Mining Company Limited annual report, 1999). Airborne geophysical surveys and diamond drilling are planned for 2001.

Other properties owned or held under option by Wallbridge Mining Company Limited in the Sudbury area include the Frood-Stobie Northeast property, Blezard Township (in the South Range breccia belt, 1.5 km south of the Inco Limited Frood-Stobie Complex); the Cascadden property, Cascadden, Levack, and Cartier townships (on the basal contact of the SIC); the Frost Lake property, Norman and Capreol townships (on an embayment structure, joint venture agreement with Falconbridge Limited); the MacLennan property, MacLennan Township; the Manchester offset property, Falconbridge Township; the Copper Cliff offset property, Waters and Snider townships; the Wisner property, Wisner and Bowell townships; the Morgan East property, Foy and Morgan Townships (Foy offset dike area); the Rudy's Lake property, Morgan Township; the Trill property, Cascadden, Trill, Drury, and Lorne townships (on the Trill embayment structure) (Wallbridge Mining Company Limited annual reports, 1998, 1999).

Wallbridge Mining Company Limited has allocated in excess of $4 million for exploration on its Sudbury area properties during 2001. Currently, the company has 5 diamond drill programs underway and an extensive ground and downhole geophysics program is planned for the winter of 2000-2001 (Wallbridge Mining Limited press release, January 15, 2001).

Table 2. Exploration activity in the Sudbury Resident Geologist District in 2000 (keyed to Figure 1).

Abbreviations

AEM	Airborne electromagnetic survey
AM	Airborne magnetic survey
AMT	Audio Magneto Tellurics
ARA	Airborne radiometric survey
Beep	Beep Mat survey
Bulk	Bulk sampling
DD	Diamond drilling
DDH	Diamond drill hole(s)
DGP	Down-hole geophysics
GC	Geochemical survey
GEM	Ground electromagnetic survey
GR	Geological survey
GM	Ground magnetic survey
GP	Geophysical survey
Grav	Gravity survey
HLEM	Horizontal loop electromagnetic survey
HM	Heavy mineral sampling
IM	Industrial mineral testing and marketing
IP	Induced polarisation survey
Lc	Linecutting
Met	Metallurgical testing
OD	Overburden drilling
ODH	Overburden drill hole(s)
OMIP	Ontario Mineral Incentive Program
OPAP	Ontario Prospectors A ssistance Program
PEM	Pulse electromagnetic survey
PGE	Platinum group elements
Pr	Prospecting
RES	Resistivity survey
Samp	Sampling (other than bulk)
Seismic	Seismic survey
SP	Self-potential survey
Str	Stripping
Tr	Trenching
UG	Underground exploration/development
VLEM	Vertical loop electromagnetic survey
VLFEM	Very low frequency electromagnetic survey
VMS	Volcanogenic massive sulphides

No	Company/Individual (Occurrence Name or Property)	Township/Area (Commodity)	Exploration Activity
1	1081751 Ontario Inc.	Ferris (Aggregate)	GM
2	129800 Ontario Inc.	Davis (Garnet)	Pr
3	Aquiline Resources Incorporated	Boon (Cu, Ni, PGE)	GM, IP, GL, Samp
4	Aurora Platinum Corp. (Footwall Property)	Falconbridge (Cu, Ni, PGE)	AEM, AM
5	Aurora Platinum Corp. (Foy Property)	Foy, Bowell (Cu, Ni, PGE)	AEM, AM, Pr, GL, Tr, GEM, GM, Samp, DD
6	Bailey R., Orchard, R. and Luhta, L.	Dana (PGE)	DD, Samp
7	Barry, A.	Baldwin (Cu, PGE)	Str
8	Barry, G.A.	Wisner (Cu, Ni, PGE, base metals)	Str, Tr
9	Barry, S.	Norman (Ag, Co, Cu, Ni)	Str, Samp
10	Bond II, J.E.	Gough	DD
11	Boulard, V.	Parkin	Str, Tr
12	Brady, J.	Janes (PGE)	GL, GC
13	Canmine Resources Corp.	Afton (Cu)	GM, DD, Samp
14	Champion Bear Resources Ltd.	Ermatinger (Cu, Ni, PGE)	GM, VLFEM, DD
15	Champion Bear Resources Ltd.	Hess, Harty (Cu, Ni, PGE, Au, Base metals)	DD
16	Chavarie, D.	Botha	Str
17	Consolidated Venturex Holdings Limited, Beilhartz, D. and Tracanelli, H. (Sandcherry Creek Property)	Tyrone	Pr, Gc, Samp
18	Consolidated Venturex Holdings Limited	Denison	Pr, Samp
19	Crawford, D.M.	Hart (Au)	Tr, Samp
20	Crowflight Minerals Inc. (AER/Kidd Property)	Denison (Cu, Ni, PGE)	GL, GM, VLFEM, AMT, DD, DGP, Samp
21	Crowflight Minerals Inc., Millstream Mines Ltd. (Airport Property)	Falconbridge (Cu, Ni, PGE)	DD
22	Ecosource Garnet Inc.	Street (Garnet)	DD

No	Company/Individual (Occurrence Name or Property)	Township/Area (Commodity)	Exploration Activity
23	Falconbridge Ltd.	MacBeth (Cu, Ni, PGE)	DD
24	Falconbridge Ltd.	Weisner - Bowell (Cu, Ni, PGE)	DGP
25	Fielding, R. (Eagle Nest Property)	Scadding, Rathbun (Cu, Au)	Tr, Beep
26	Flag Resources (1985) Limited	Rathbun, Mackelcan (Cu, Ni, PGE)	DD, Samp
27	Freewest Resources Canada Inc., and Sparton Resources Inc.	Gerow (Cu, Ni, PGE)	Tr, Str, Samp, HLEM, IP, GL, DD
28	Goldwright Explorations Inc.	Davis, Janes, Kelly (Cu, Ni, PGE)	IP, GM, IP, VLFEM, RES, SP, Tr, Samp, Lc
29	Haberer, J.	Wyse (Silica)	Str
30	Hawke, D.R.	Franklin	GL, Lc
31	Komarechka, R.	Mattawan (PGE, Base metals)	GM, VLFEM
32	Komarechka, R, L. Alaire & Sons Ltd. and Fudge, D.	Eden (Silica)	Beep
33	Lefebvre, M. and Fillier, S	Craig	Pr, Str
34	MacDonald Mines (Casson Lake Project)	Curtin (Cu, Ni, PGE)	Str, Tr, Samp
35	Manex Granit Inc.	Goschen (Building stone)	Str
36	Mustang Minerals Corp. (East Bull Lake Property)	Boon / Gerow (PGE)	GM, Lc, IP
37	Mustang Minerals Corp. (River Valley Area)	Crerar, McWilliams, Dana (PGE)	IP, GL, Samp
38	Orchard, R.	Dryden (PGE)	GM, GL
39	Pacific Northwest Capital Corp. (River Valley Area Properties)	Dana, Davis, Janes Kelly, McNish (PGE)	GL, Pr, Samp
40	Pacific Northwest Capital Corp. (East Bull Lake Property)	Dunlop, Gough, Shibananing (PGE)	
41	Platinum Group Metals Ltd.	Henry, Loughrin (PGE)	GL, GC, Samp
42	Racicot, F. and Brady, M.	Davis (PGE)	GL, GC
43	Racicot, F. and Leblanc, A.	Henry (PGE)	GL, Samp
44	Salo, G.	Dieppe, Truman (Cu, Ni, Co, PGE, Au)	Pr, Samp
45	Salo, G.	Hutton (Au)	GC, Samp
46	Secord Silica Corp.	Secord (Silica)	Str
47	Shouinard, G. and Montreuil, R.	Mattawan (PGE, Diamonds)	GM, GL, Str
48	Solitaire Minerals Corp., Loney, T.	Davis, Kelly, Rathbun, Scadding (PGE)	GL, Samp
49	Temex Resources Ltd. (Eagle Rock Lake Property)	Scholes (VMS)	GL, Pr, Samp, DD
50	TRC Management Inc.	Dana (Cu, Ni, PGE)	Pr, Samp, VLFEM
51	Ursa Major Minerals Inc.	Porter, Shakespeare (PGE)	GL, IP, Samp
52	Vandevalk, H.	Lount (Cu, Ni, Co, PGE)	GM, VLFEM, GEM, Pr, Str
53	Vinecrest Management Services	Butt (Graphite)	Compilation
54	Wallbridge Mining Co. Ltd.	Capreol, Cascaden, Drury, Falconbridge, Maclennan, Morgan, Sheppard (Cu, Ni, PGE)	GL, GM, GC, Pr, AMT, DGP, DD, Samp
55	Wallbridge Mining Co. Ltd. (Creighton South Property)	Graham, Waters (Cu, Ni, PGE)	GL, AMT, DD, DGP, Samp,
56	Wallbridge Mining Co. Ltd. (Parkin Property)	Parkin, Norman (Cu, Ni, PGE)	AMT, DD, PEM
57	White, J.W.	Roosevelt (Au, PGE)	Pr, GC, Samp

Table 3. Assessment files received in the Sudbury District in 2000.

Abbreviations

AEM ..... Airborne electromagnetic survey
AM ..... Airborne magnetic survey
ARA ..... Airborne radiometric survey
AMT ..... Audio Magneto Tellurics
Beep ..... Beep Mat survey
Bulk ..... Bulk sampling
DD ..... Diamond drilling
DDH ..... Diamond drill hole(s)
DGP ..... Down-hole geophysics
GC ..... Geochemical survey
GEM ..... Ground electromagnetic survey
GL ..... Geological Survey
GM ..... Ground magnetic survey
GRA ..... Ground radiometric survey
Grav ..... Gravity survey
HLEM ..... Horizontal loop electromagnetic survey
HM ..... Heavy mineral sampling
IM ..... Industrial mineral testing and marketing
IP ..... Induced polarisation survey
Lc ..... Linecutting
Met ..... Metallurgical testing
Min ..... Mineralogical Study
OD ..... Overburden drilling
OMIP ..... Ontario Mineral Incentive Program
OPAP ..... Ontario Prospectors Assistance Program
PEM ..... Pulse electromagnetic survey
PGM ..... Platinum group metals
Pr ..... Prospecting
RES ..... Resistivity survey
Samp ..... Sampling (other than bulk)
Seismic ..... Seismic survey
SP ..... Self-potential survey
Str ..... Stripping
Tr ..... Trenching
UG ..... Underground exploration/development
VLEM ..... Vertical loop electromagnetic survey
VLFEM ..... Very low frequency electromagnetic survey

Township or Area	Company Name	Year	Type of Work	AFRO Number	Resident Geologist Office File Designation
Rathbun	Flag Resources (1985) Limited	1999	VLFEM, GM	2.19764	SP033
Hess	Champion Bear Resources Ltd.	1999	DD, GL	2.19907	SP014
Norman	Scott H. Barry	1999	DD, Str, Tr, Samp, GC	2.19685	SP029
Rathbun	Flag Resources (1985) Limited	1999	PEM	2.19740	SP034
Janes	Goldwright Explorations Inc.	1999	DD, GL, GC	2.19887	SP012
Papineau	High G Minerals Corporation	1999	Min	2.19733	SP002
Wisner	Gordon A. Barry	1999	Str, Tr, DDH	2.19731	SP015
Mattawan	High G Minerals Corporation	1999	GL, Samp	2.19765	SP010
Dana, Pardo	S. Jobin-Bevans	1999	Str, Samp	2.19761	SP006
Janes	F. Racicot	1999	GM	2.19967	SP013
Valin, Stull	L. Salo	1999	GL, GC, Lc, DDH	2.19976	SP001
Dana, Crerar, Janes, Henry	E. Gallo	1992	Pr, Samp	OP92-076	SP007*
Milne	Temex Resources Ltd.	1999	AM, AEM	2.19857	SP002
Kelly	T. Loney, M. Loney	1999	Lc, Pr, samp	2.19978	SP008
Ryerson	J. McCarty	1999	Str	2.19979	SP011
Graham, Waters	Minescape Exploration Inc.	1999	AMT	2.19816	SP003
Mattawan	High G Minerals Corporation	1999	OD	2.19906	SP011

Township or Area	Company Name	Year	Type of Work	AFRO Number	Resident Geologist Office File Designation
Levack	Inco Limited	1999	DD	2.19910	SP005
Kelly	Goldwright Explorations Inc.	1999	Tr, Samp, GC	2.19818	SP009
Kelly	Goldwright Explorations Inc.	1999	Tr, Str	2.19982	SP010
Curtin	D.A. Brunne	1999	DD, GL, Samp	2.20101	SP022
Lorne	Wallbridge Mining Co. Ltd.	1999	AM, IP, GEM	2.20099	SP006
Hutton	G. Salo	1999	GC, Sampling	2.20098	SP039
Foster	G. Salo	1999	Pr, Samp	2.20097	SP014
Dana, McWilliams	Mustang Minerals Corp.	1999	GL, Samp	2.20092	SP008
Dieppe, Truman	G. Salo	1999	Pr, Samp	OP99-074	SP014*
Graham	Wallbridge Mining Co. Ltd.	1999	GL	2.19855	SP004
Waters, Graham	Wallbridge Mining Co. Ltd.	1999	GL	2.19908	SP005
Mongowin	Garson Resources Ltd.	1999	DD	2.20141	SP017
Trill	Wallbridge Mining Co. Ltd.	1999	AMT	2.19993	SP002
Norman	L. Barry	1999	Str, Tr	2.20184	SP030
Parkin	J. Brady	1999	Str, Tr, Samp	2.20047	SP060
Neelon	Warren Bitulithic Limited	1999	DD	2.19966	SP006
Drury, Trill	Wallbridge Mining Co. Ltd.	1999	AM, AEM	2.19996	SP002
Butler	W.C. Symonds	1999	Str, Tr, Bulk	2.19981	SP005
Dana, Crerar, Janes, Henry	Mustang Minerals Corp.	1999	GL, Samp, Pr	2.19986	SP014
Attlee, Kilpatrick	J.M. O'Shaughnessy, M.A. Paterson	1999	GL, GM, DD, Samp	2.20132	SP001
Parkin	J. Brady	1997	Bulk, Str, Tr	2.19196	SP061
Parkin	Champion Bear Resources Ltd.	1999	DD	2.20232	SP062
Parkin, Norman	J. Brady	1998	Str, Tr	2.19155	SP063
Dieppe, Truman	G. Salo	1999	Pr, Samp, Tr, GM, VLFEM	2.20095	SP012
Porter	D. Brunne	1999	Tr, GL, Samp	2.20100	SP008
Stralak	A. Leclair	1999	GL	2.20093	SP003
Mattawan	R. Komarechka	2000	GM, VLFEM	2.20235	SP012
Rathbun	Flag Resources (1985) Limited	1999	DD	2.20094	SP035
Rathbun	Flag Resources (1985) Limited	2000	DD	2.20088	SP036
Dunlop	D.R. Hawke	1998	Pr, GC, Samp	2.20239	SP003
Gerow	Freewest Resources Canada Inc.	1999	Tr, Str, Samp, HLEM, IP, GL, DD	2.20236	SP010
Hess, Harty	Champion Bear Resources Ltd.	2000	DD	2.20096	SP003
Davis	Goldwright Explorations Inc.	1999	Tr, GL, Samp	2.19913	SP050

SUDBURY DISTRICT – 2000

Township or Area	Company Name	Year	Type of Work	AFRO Number	Resident Geologist Office File Designation
Scadding, Street	J. Brady	1999	Str, Tr	2.20029	SP037
Norman	S. Barry	2000	Str, Samp	2.20278	SP031
Foy	Wallbridge Mining Co. Ltd.	1999	DD	2.20283	SP008
Foy	Wallbridge Mining Co. Ltd.	1999	HLEM	2.20282	SP009
Dryden	L. Luhta	1998	Pr	OP98-387 OP98-388 OP98-389	SP002*
Janes	S. Jobin-Bevans	1998	GL, GC, GM, VLFEM, Tr	2.20691	SP015
Gough, Shakespeare	New Millennium Metals Corp.	1999	GC, GL, DD, Tr	2.20023	SP005
Wisner	G. A. Barry	2000	Str, Tr	2.20310	SP016
Crerar	Mustang Minerals Corp.	1999	Lc, GM	2.20076	SP006
McWilliams	Mustang Minerals Corp.	1999	Lc, GM	2.20077	SP002
Vernon	D. Brunne	1999	Str	2.20102	SP001
Sheppard	Wallbridge Mining Co. Ltd.	2000	DD	2.20311	SP008
Drury	Wallbridge Mining Co. Ltd.	2000	AMT survey	2.20302	SP003
Rathbun, Mackelcan	Flag Resources (1985) Limited	1999	DD	2.20089	SP037
Dana	TRC Management Inc.	2000	Pr, Samp, VLFEM	2.20347	SP009
Boon	Mustang Minerals Corp.	2000	Lc, IP	2.20345	SP013
Street	Ecosource Garnet Inc.	1999	DD	2.20346	SP016
Crerar, McWilliams, Dana	Mustang Minerals Corp.	2000	IP	2.20381	SP007
Dana, Pardo	R. Bailey, R. Orchard, L. Luhta	1999	GM, IP	2.20317	SP010
Waters	M. R. Kosovsky	1999	DD, Samp	2.20233	SP011
Rathbun	Flag Resources (1985) Limited	2000	DD, Samp	2.20277	SP038
Loughrin, Henry	Z.L. Mandziuk	1999	Pr, Lc, GL, VLFEM, DD	2.20185	SP005
Kelly	Goldwright Explorations Inc.	2000	IP, RES, Lc	2.20434	SP011
Parkman	Chris Marmont, Rodney Thomas	1999	GC	2.20443	SP007
Janes	J. Brady	2000	GL, GC	2.20451	SP016
Janes	Pacific Northwest Capital, Consolidated Venturex Holdings Ltd.	1999	DD	2.20356	SP017
Carling	J. Trussler	1999	GL	2.20134	SP013
Gerow	Mustang Minerals Corp.	1999	DD, Samp	2.20440	SP011
Crerar	Mustang Minerals Corp.	1999	GL, Samp	2.20091	SP008
Scadding	A. Peer	1999	Lc, Str	2.20517	SP042
Craig	Marc Lefebvre, Sterling Fillier	2000	Pr, Str	2.20436	SP005
Dryden	R. Orchard	2000	GM, GL	2.20435	SP003
Rathbun	Flag Resources (1985) Limited	2000	DD	2.20304	SP039

Township or Area	Company Name	Year	Type of Work	AFRO Number	Resident Geologist Office File Designation
Weisner - Bowell	Falconbridge Ltd.	2000	DGP	2.20276	SP017
Boon	Mustang Minerals Corp, Freewest Resources Canada Inc.	2000	GM, IP, GL, Samp	2.20266	SP014
Louise	1228328 Ontario Inc.	1999	GM, GL, Samp	2.20354	SP008
Gerow	Mustang Minerals Corp.	1999	DD, Samp	2.20440	SP011
Gerow	Mustang Minerals Corp.	1999	Lc, GM, IP	2.20313	SP012
Capreol	Wallbridge Mining Co. Ltd.	2000	DGP, GL	2.20439	SP003
Boon / Gerow	Mustang Minerals Corp.	2000	GM, Lc	2.20524	SP015
Eden	R. Komerechka, L. Alaire & Sons Ltd., Don Fudge	2000	Beep	2.20492	SP011
Davis	Pacific Northwest Capital Corp.	2000	GL, Pr, Samp	2.20512	SP060
Hart	D. M. Crawford	2000	Tr, Samp	2.20613	SP014
Baldwin	A. Barry	2000	Str	2.20487	SP015
MacBeth	Falconbridge Ltd.	2000	DD	2.20557	SP012
Ferris	1081751 Ontario Inc.	2000	GM	2.20606	SP002
Mattawan	G.Shouinard, R. Montreuil	2000	GM, GL	2.20593	SP019
Rathbun	Flag Resources (1985) Limited	2000	DD	2.20532	SP040
Rathbun	Flag Resources (1985) Limited	2000	DD	2.20437	SP041
Rathbun	Flag Resources (1985) Limited	2000	DD	2.20502	SP042
Roosevelt	J. W. White	2000	Pr, GC, Samp	2.20519	SP010
Franklin	D. R. Hawke	2000	GL, Lc	2.20612	SP002
Wyse	J. Haberer	2000	Str	2.20378	SP003
Falconbridge	Wallbridge Mining Co. Ltd.	2000	DD	2.20564	SP029
MacLennan	Wallbridge Mining Co. Ltd.	2000	AMT	2.20565	SP018
Dana	R. Bailey, R. Orchard, L. Luhta	2000	DD, Samp	2.20591	SP011
Davis	129800 Ontario Inc.	2000	Pr	2.20446	SP061
Falconbridge	Millstream Mines Ltd.	1998	IP	2.20639	SP030
Scholes	Temex Resources Ltd.	2000	GL, Pr, Samp	2.20561	SP008
Gough	J. E. Bond II	2000	DD	2.20666	SP006
Parkin	V. Boulard	2000	Tr	2.20486	SP064
Boon	Mustang Minerals Corp.	2000	GM	2.20669	SP016
Mattawan	G. Shouinard	2000	GM, VLFEM	2.20707	SP020
Ermatinger	Champion Bear Resources Ltd.	2000	GM, VLFEM	2.20680	SP003
Cascaden	Wallbridge Mining Co. Ltd.	2000	AMT	2.20657	SP002
Butt	Vinecrest Management Services	2000	Compilation	2.20573	SP043

Township or Area	Company Name	Year	Type of Work	AFRO Number	Resident Geologist Office File Designation
Janes	Goldwright Explorations Inc.	2000	Tr, IP, VLFEM, SP, Samp	2.20554	SP018
Janes	Goldwright Explorations Inc.	1999	DD	2.20720	SP019
Davis	F. Racicot, M. Brady	2000	GL, GC	2.20724	SP062
Davis	Goldwright Explorations Inc.	2000	IP, GM	2.20686	SP063
Kelly	Pacific Northwest Capital Corp.	1999	IP, GM	2.20769	SP012
Secord	Secord Silica Corp.	2000	Str	2.20523	SP007
Mattawan	R. Komarechka	2000	GM, VLFEM	2.20766	SP021
Henry	F. Racicot, A. Leblanc	2000	GL, Samp	2.20726	SP007
MacLennan	T. Fielding	1999	Pr, GC, Str, Samp	2.20706	SP019
Loughrin	T. Obradovich	1999	GL, Pr, GM, VLFEM, IP, Lc, Samp	2.20690	SP006

LAND USE PLANNING ACTIVITY

Land use planning activity in the year 2000 consisted of providing input on mineral potential to consultants and the Ministry of Municipal Affairs and Housing. This information will be considered in the development of new official plans under the provincial municipal restructuring initiative. The areas of planning interest are the majority of new municipalities in the judicial districts of Manitoulin, Parry Sound, and Muskoka, as well as the Sudbury East Planning Area, the municipalities of Ratter-Dunnet and Nairn-Hyman, and the townships of Baldwin, Foster, North Himsworth, and South Himsworth.

Land access considerations of the Mackelcan Road were discussed through membership in the Local Citizens Committee, and through participation in two field trips with the Sudbury District office of the Ministry of Natural Resources. Several stakeholder groups were able to compromise on the location of the blockage of the road, whereby road access will be maintained to the land base. The area is in the vicinity of the Wanapitei magnetic anomaly, and is covered by mining claims of Flag Resources (1985) Limited/Golden Briar Mines Limited and Falconbridge Limited. The area has also been designated under Ontario's Living Legacy land use strategy.

RESIDENT GEOLOGIST PROGRAM STAFF AND ACTIVITIES

In 2000, the Sudbury District Geologist office was staffed by M. Cosec, District Geologist, and acting District Support Geologists E.C. Chaloux, D. Stephenson, and C. Stephenson, while S. Gosselin (District Support Geologist) was on training and development assignments with the Resident Geologist Program in Red Lake and the Information and Marketing Services Section in Sudbury. Experience Program summer students H. Ulrichsen and B. Heino ably assisted the office.

Staff responded to approximately 2500 office inquiries, 2400 telephone inquiries and 10 media contacts. Requests for information included geological information on a variety of topics, including exploration activity, rock and mineral identification, geological tours, mineral potential evaluations, and land value issues. A total of 21 property visits were given to clients.

The District Geologist served as the mining industry representative to the Northern Economic Development Area Team to provide potential funding assistance to clients from the Northern Ontario Heritage Fund Corporation. The annual Regional Economic Development Conference in Sault Ste. Marie was attended. Advice was provided to the development of the Onaping Falls Geological Tour, partially funded by Northern Ontario Heritage Fund Corporation.

In August, M. Cosec was appointed as a councillor by the Honourable T. Hudak, Minister of Northern Development and Mines, to the Transitional Council of the Association of Professional Geoscientists of Ontario. The association is working toward professional registration of geoscientists in Ontario, which should be in place by late 2002.

Representation was provided by attendance at local talks and events of the Sudbury Prospectors and Developers Association, the Sudbury Geological Discussion Group, and the Sudbury District Chamber of Commerce.

M. Cosec attended the Mining Millenium 2000 Conference in Toronto in March and the annual Northeastern Regional Geoscience Symposium in Kirkland Lake in April with a poster session.

Field trips of the Sudbury Structure were organized for various groups and individuals during the year. These included Sir Sanford Fleming College, the Bishop Strachan School, Upper Canada College, and the University of Ohio.

M. Cosec also maintains a seat on the Cambrian College School of Mineral Resources curriculum advisory committee.

MINERAL DEPOSIT INVENTORY

The Mineral Deposit Inventory is a digital catalog of mineral occurrences maintained by each district, as part of an ongoing project of the Resident Geologist Program. Files are continually being verified and expanded. New occurrences are also added to the database. All existing files in the following townships were verified for accuracy this year: Creighton, Crerar, Curtin, Dana, Davis, Dawson, Delaware, Delhi, Demorest, Denison, Dieppe, Dill, Dowling, Drury, Dryden, Dublin, Dunlop, East Ferris, Eden, Ellis, Emo, Ermatinger, Fairbank, Falconbridge, Falconer, Field, Foster, Foy, Fraleck, Frechette, Garson, Gerow, Gibbons, Gilbert, Gordon, Goschen, Gough, Graham, Grant, Grigg, Haddo, Hager, Hallam, Hanmer, Harrow, Hart, Harty, Hawley, Hendrie, Henry, Hess, Hodgetts, Hoskin, Howland, Humboldt, Hyman, Janes, Kelly, Killarney, Kirkpatrick, Kitchener, Latchford, Laura, Leask, Levack, Lorne, Loudon, Loughrin, Louise, MacBeth, Mackelcan, MacLennan, MacPherson, Mandamin, Marconi, Marshay, Martland, Mason, May, McCarthy, McConnell, McKim, McKinnon, McNish, McPhail, McWilliams, Merritt, Moncrieff, Monestine, Mongowin, Morgan, Munster, Nairn, Neelon, Norman, North Himsworth, Onaping, Ouelette, Pardo, Parker, Parkin, Pedley, Porter, Rathbun, Ratter, Rayside, Rhodes, Rideout, Roberts, Roosevelt, Rutherford, Ryerson, Salter, Sandfield, Scadding, Scholes, Scollard, Seagram, Secord and Selkirk. In these 120 townships, a total of 1381 MDI occurrences were updated.

Table 4. Property visits conducted by the Sudbury District office in 2000.

Number (keyed to Figure 5)	Property/Occurrence
1	Salo Property, Truman and Dieppe townships. (Ni, Cu, Co, PGE)
2	Christie Township (silica)
3	Agnew Lake area (PGE)
4	Laura Township (Ni, Cu, PGE)
5	Dana Township (Ni, Cu, PGE)*
6	Victoria Township (Ni, Cu, PGE, silica, aggregate)
7	Cadeau Township (Ni, Cu, PGE, silica)
8	Mackelcan Township (Ni, Cu, PGE, Au)
9	Spanish River carbonatite, Venturi Township *
10	Ethier Sand and Gravel Limited, Dill Township (aggregate)
11	Allstone Quarry Products Limited, Bigwood Township (stone)
12	Gibbons Township (PGE, aggregate)
13	Hugel Township (feldspar)
14	Ratter Township (aggregate)
15	Fitzwilliam Island (dolomite)
16	Denison Township (Ni, Cu, PGE)*
17	Lount Township (garnet)
18	Curtin Township (PGE)

**Properties visited more than once.*

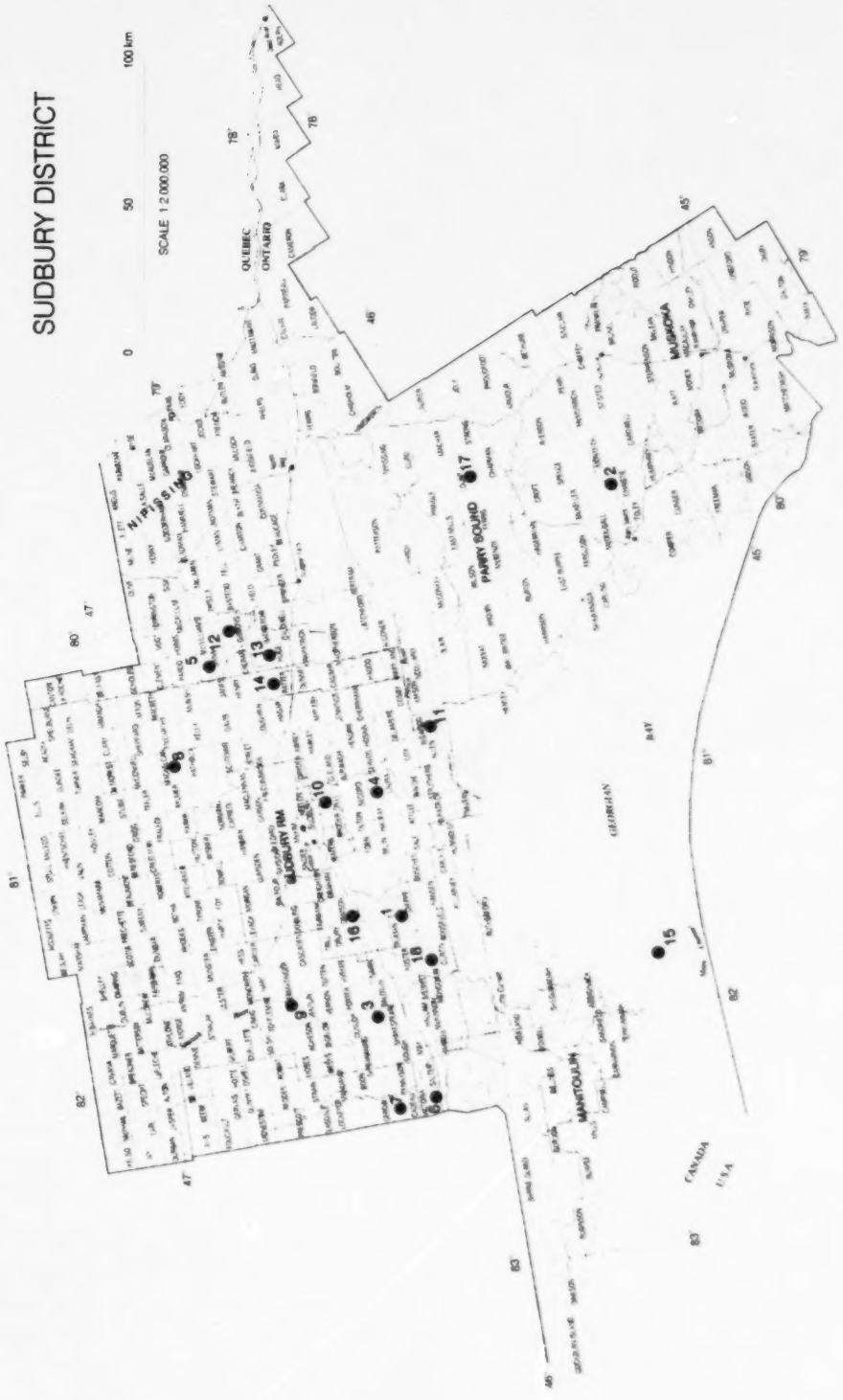


Figure 5. Property visits conducted by the Sudbury District in 2000.

PROPERTY EXAMINATIONS

The following is a contribution from M. Hailstone, Sault Ste Marie District Geologist, Resident Geologist Program, Ontario Geological Survey.

Freewest Resources Canada Incorporated and Sparton Resources Incorporated, Folson Lake PGE Prospect - Gerow Township (M. Hailstone)

LOCATION

Platinum Group Elements (PGE), nickel, and copper are target commodities of an exploration project underway at Folson Lake in Gerow Township. Freewest Resources Canada Incorporated and 50 per cent joint venture partner Sparton Resources Incorporated hold 20 claim units within claims S 1226627 and S 1226857, located near the southwestern boundary of the Paleoproterozoic East Bull Lake differentiated mafic intrusion. The property is situated 100 km west of Sudbury and 30 km east of Elliot Lake and can be accessed via an all-weather logging road trending northward 25 km from the trans-Canada highway at the town of Massey. From this location a drill road leads west 5.2 km to the Valhalla and Japanese Garden showings.

PREVIOUS WORK

Moore and Armstrong (1943) completed the earliest mapping of the geology of the East Bull Lake area.

The Ontario Geological Survey, partnered with Laurentian University, completed mapping and lithogeochemistry studies on the East Bull Lake intrusion between 1990 and 1995 (Peck and James 1991; Peck et al. 1993, 1995; Byron, Whitehead, and Davis 1994). The purpose of the project was to determine the PGE potential of the intrusion as part of the Government of Ontario's Elliot Lake Initiative Program. Academic geological research in the area includes P. Born MSc. thesis (1979) and P.T. Chubb MSc. thesis (1994).

Gallo Exploration Services carried out an exploration program for PGE during 1989-1990 south and east of Bull Lake. PGE values of up to 5 g/t Pt + Pd associated with sulphides were defined from assays of surface samples. A large tract of land was evaluated structurally by Atomic Energy of Canada Limited between 1980 and 1990 for potential storage of radioactive waste. By 1992, Inco Limited had staked or otherwise acquired most of the ground in the East Bull Lake area. In 1998 much of the East Bull Lake intrusion was restaked by the present holders, Mustang Minerals Corporation.

Previous assessment work reported from the Folson Lake area comprised geological mapping and ground geophysical surveys submitted by Inco Limited. In 1998, Freewest Resources Canada Incorporated staked two claims for a total of 20 claim units in the vicinity of Folson Lake. The company was attracted to the area by published assay results (Byron 1994) wherein sampling returned maximum assay values of 450 ppb Pt, 340 ppb Pd and 220 ppb Au.

Approximately 2500 m of diamond drilling were completed in 22 holes during the current project, according to a Sparton Resources Incorporated press release dated January 11, 2001. The Phase 1 Program tested the basal mineralized Inclusion Bearing Zone (IBZ) of the East Bull Lake intrusion. The IBZ was intersected almost continuously across the claim area, except where it was interrupted by younger diabase dikes. The zone varies in thickness from about 10 m to over 50 m, and dips 50° to the north. The center of the deepest intersection (hole 321-00-10) is approximately 150 m below surface. The surface exposure of the IBZ horizon had been previously explored through extensive surface mapping and trenching program in 2000 and through a limited drill program in 1999 (Freewest Resources Canada Incorporated press release).

BEDROCK GEOLOGY

The property is underlain by Paleoproterozoic rocks of the East Bull Lake differentiated mafic intrusion and by rocks of the Archean Whisky Lake greenstone belt. Mineralization is associated with an inclusion-bearing gabbronorite unit varying in thickness from 25 m to 75 meters. This unit has been traced on surface a distance of 1.7 km across the property. The IBZ occurs discontinuously along the margins of the East Bull Lake intrusion in Gerow and Boon townships as mapped by Peck et al. (1995). In the vicinity of the Folson Lake property the IBZ is overlain by massive to layered leucogabbronorite. The contact between the two units is exposed in outcrop as a sheared zone approximately 1 m thick in the vicinity of the Japanese Garden showing. A grab sample collected from this area assayed 43 g/t Pt/Pd+Au.

The Valhalla showing represents the most easterly exposure of bedrock mineralization found on the property to date. The transition zone between the overlying leucogabbronorite and the IBZ is covered by overburden in a topographic low at this site, located 450 m west of the eastern border of the property. Stripping and trenching operations at this location have exposed sub-angular to rounded inclusions of granitic and mafic material in the IBZ.

ALTERATION AND MINERALIZATION

At the Japanese Garden site the sheared, meter-thick contact zone between the underlying border zone and the IBZ is exposed in outcrop. These border zone rocks are thought to represent the contact metamorphic zone of the East Bull Lake intrusion. The metavolcanic rocks of the Whiskey Lake greenstone belt on the Folson Lake property have been described as intensely sheared (chloritic and somewhat schistose) parallel to this contact, containing variable amounts of fine-grained disseminated sulphide mineralization and minor quartz veining. Deformation characteristics of the contact region are absent 20 m south of the contact, where the metabasalts look relatively fresh and undeformed (Byron 1994). Generally, sulphides occur in the IBZ as blebs and patches of chalcopyrite and pyrrhotite, frequently with chalcopyrite surrounding pyrrhotite and as disseminated very fine pyrrhotite ± disseminated pyrite up to 5 percent. Pegmatitic gabbro, interstitial to the IBZ inclusions, locally contains patches of chalcopyrite and may contain disseminated fine pyrrhotite.

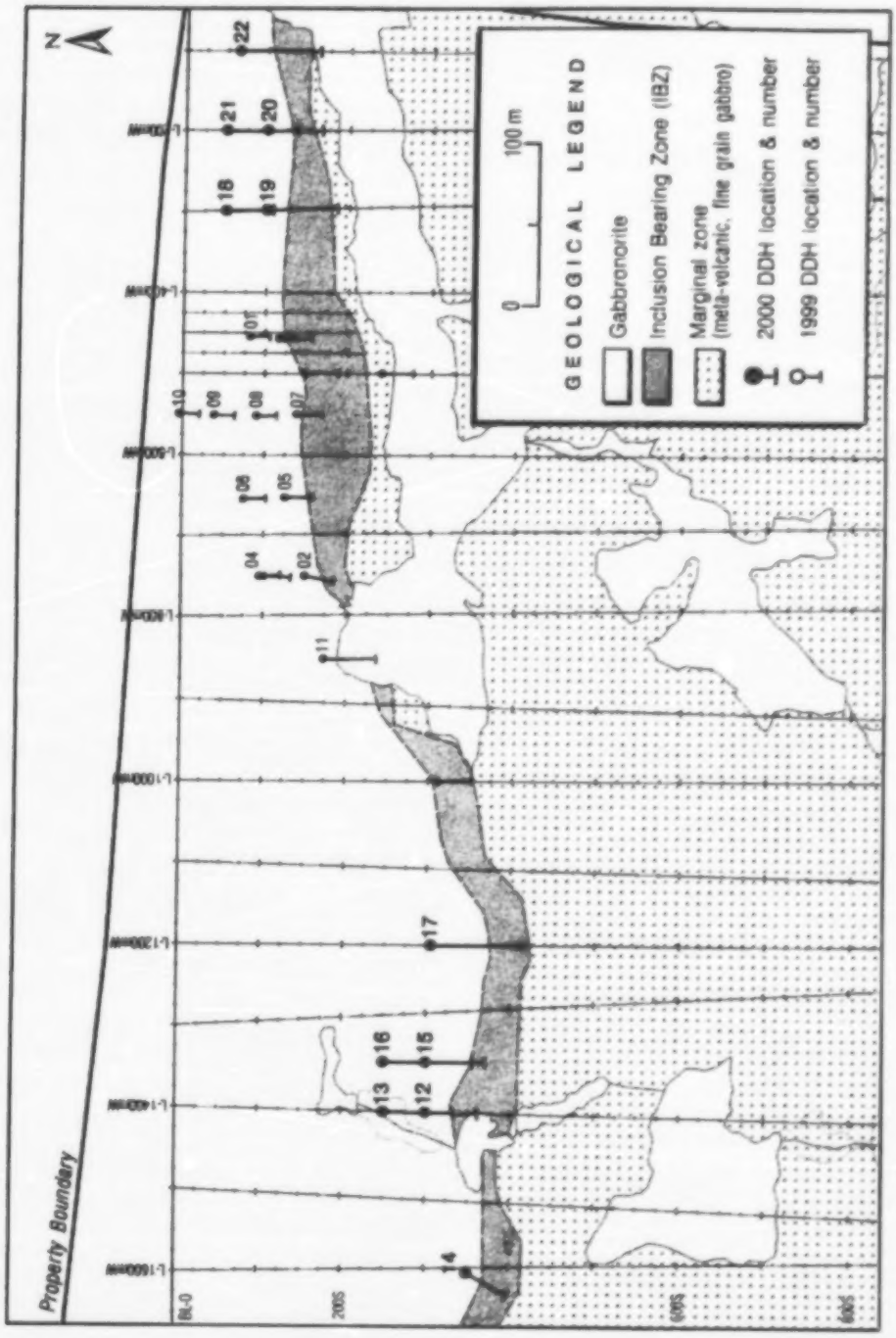


Figure 6. Freewest Resources Canada Incorporated and Sparton Resources Incorporated - Folson Lake PGE property in Gerow Township, showing rock types and diamond drill holes from 1999 and 2000 diamond drill programs (reproduced with permission of Freewest Resources Canada Incorporated and Sparton Resources Incorporated).

Drill core from diamond drill hole 8 was examined and photographed in the field at the core logging facility at East Bull Lake Lodge. Net-textured pyrrhotite and leucoxene alteration of sphene and feathered ilmenite was noted in the core between 55 and 65 meters. Primary magnetite rimmed with pyrrhotite was observed at a depth of 64.5 meters.

Palladium and platinum ratios range from 2:1 to 3:1 on the Folson Lake project, and are relatively consistent in the analytical database. A mineralogy study of samples from the 1999 drill program on the Valhalla Zone has been completed to determine how the platinum group elements (PGE) occur and to provide data for metallurgical testing. L. Cabri has identified six palladium and two platinum minerals in heavy mineral concentrates from drill core samples. Approximately 80 per cent of PGE and 50 per cent of gold grains occur in pyrrhotite, with most of the remainder occurring in chalcopyrite and a minor amount in pyrite. One rhodium-bearing mineral was also identified. Further work is planned using data acquired from the current drill program (Freewest Resources Canada Incorporated press release).

RECOMMENDATIONS FOR EXPLORATION

Platinum Group Elements (PGE), Ni, Cu

Exploration for platinum group elements has been the dominant activity in the Sudbury District for the past three seasons. The majority of exploration work has been conducted on differentiated mafic intrusive rocks of the 2.45 Ga East Bull Lake suite of rocks that include the River Valley, Agnew, and East Bull Lake complexes. Some work was also carried out on 2.22 Ga Nipissing gabbro intrusive rocks, particularly in the area east of Wanapitei Lake.

Much of this ground is held in good standing under the Mining Act as claims, leases, and patents, with a substantial amount of assessment work yet to be applied. As such, opportunities for land acquisition on ground underlain by these mafic intrusive rocks are limited. However, several marginal areas of mafic intrusive rocks may also be prospective for platinum groups elements. These include, but are not necessarily restricted to the following:

i mafic intrusive rocks north of the East Bull Lake complex in Lockeyer and Mandamin townships;
ii mafic intrusive rocks, particularly those currently considered as Nipissing gabbro west of Sudbury to Elliot Lake and hosted in Huronian Supergroup metasedimentary rocks of the Penokean Fold Belt;
iii Archean mafic intrusive rocks hosted within the Benny greenstone belt;
iv mafic intrusive complexes hosted within the Central Gneiss Belt (i.e. Whitestone, Arnstein, Eau Claire, Mattawan Township, McConkey Township);
v areas within the Grenville Front Tectonic Zone east of the River Valley complex (Flett, Angus, and Parkman townships).

Targets to consider include known Ni-Cu occurrences, previously considered uneconomic for those metals, with emphasis on platinum group elements. There are two distinct styles of mineralization, namely:

i disseminated magmatic sulphides, particularly within inclusion leucogabbronorite;
ii disseminated to massive, structurally controlled sulphides

Both types are enriched in platinum, palladium, copper, nickel, and gold. However, recent work in the area suggests the magmatic sulphides are more strongly enriched in the platinum group elements.

Offset Dikes of the Sudbury Igneous Complex

Exploration activity related to the search for undiscovered Offset Dikes of the Sudbury Igneous Complex has also been strong, following recent discoveries by Inco Limited at Kelly Lake on the Copper Cliff Offset and the Totten Mine on the Worthington Offset. Prospective ground includes those areas underlain by Archean Algoman granitic and migmatitc rocks, particularly north and west of the Sudbury Igneous Complex.

Flagstone

Exploration for high-quality flagstone should be emphasized since production from one of Ontario's oldest and largest flagstone operations, the Mill Lake Stone Quarry, will be constrained in the coming years. This type of gneissic rock can be found along the Parry Sound shear zone from Parry Sound east to Huntsville. The Muskoka flagstone is in high demand and close to large markets.

Table 5. Publications received by the Sudbury Resident Geologist Office in 2000.

Title	Author	Type and Year of Publication
Traces of Catastrophe: A Handbook of Shock-Metamorphic Effects in Terrestrial Meteorite Impact Structures	French, B.	Lunar and Planetary Institute Contribution No. 954, 1998.
Precambrian Geology, Lake Joseph area	Lumbers, S. and Vertolli, V.	Ontario Geological Survey, Preliminary Map P.3412, scale 1:50 000, 2000.
Precambrian Geology, Orrville area	Lumbers, S. and Vertolli, V.	Ontario Geological Survey, Preliminary Map P.3414, scale 1:50 000, 2000.
Precambrian Geology, Penetanguishine area	Van Berkel, J.T. and Schwerdtner, W.M.	Ontario Geological Survey, Preliminary Map P. 3410, scale 1:50 000, 2000.
Precambrian Geology, Gravenhurst area	Schwerdtner, W.M.	Ontario Geological Survey, Preliminary Map P. 3409, scale 1:50 000, 2000.
Regional Distribution of Platinum, Palladium, Gold, Kimberlite Indicator Minerals and Bas Metals in Surficial Sediments, River Valley Area, Northeastern Ontario	N.P. Tardif	Ontario Geological Survey, Open File Report 6010, 2000.

Title	Author	Type and Year of Publication
Report of Activities, 1999 Resident Geologist Program. Red Lake Regional Resident Geologist Report: Red Lake and Kenora District	Hinz, P., Storey, C.C., Gosselin, S.DM., Blackburn, C.C. and Kosloski, L.	Ontario Geological Survey, Open File Report 6003, 2000.
Report of Activities, 1999 Resident Geologist Program. Thunder Bay South Regional Resident Geologist Report: Thunder Bay South District	Schneiders, B.R., Scott, J.F., Smyk, M.C. and O'Brien, M.S.	Ontario Geological Survey, Open File Report 6005, 2000.
Report of Activities, 1999 Resident Geologist Program. Thunder Bay North Regional Resident Geologist Report: Thunder Bay North and Sioux Lookout Districts	Mason, J.K., Farrow, D., Seim, G., White, G.D., O'Brien, M.S., Walden, A., and Komar, C.	Ontario Geological Survey, Open File Report 6004, 2000.
Procedural Guidelines for Qualitative Mineral Potential Evaluations by the Ontario Geological Survey	Rogers M.C. and C.N. Hart	Ontario Geological Survey, Open File Report 5929, 1995.
Results of Regional Till Sampling in the Western Part of the Shebandowan Greenstone Belt, Northwestern Ontario	Bajc, A.F.	Ontario Geological Survey, Open File Report 6012, 2000.
Kimberlite, Base Metal, Gold and Carbonatite Exploration Targets, Derived From Overburden Heavy Mineral Data, Killala Lake Area, Northwestern Ontario	Morris, T.F., Sage, R.P., Crabtree, D.C. and Pitre, S.A.	Ontario Geological Survey, Open File Report 6013, 2000.
Garden-Obonga Lake Area High Density Lake Sediment and Water Geochemical Survey, Northwestern Ontario	Jackson, J.E. and Dyer, R.D.	Ontario Geological Survey, Open File Report 6009, 2000.
The Distribution of Gold Grains in Till, Sachigo River Mine, Northwest Ontario	Stone, D., Halle, J. and Lange, M.	Ontario Geological Survey, Open File Report 6015, 2000.
Report of Activities, 1999 Resident Geologist Program. Southern Ontario Regional Resident Geologist Report: Southeastern and Southwestern Districts, Mines and Minerals Information Centre, and Petroleum Resources Centre	Sangster, P.J. McGuinty, W.J., Papertzian, V.C., Steele, K.G. Lee, C.R., Laidlaw, D.A. and Carter, T.R.	Ontario Geological Survey, Open File Report 6008, 2000.

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Title	Author	Type and Year of Publication
Report of Activities, 1999 Resident Geologist Program. Kirkland Lake Regional Resident Geologist Report: Kirkland Lake and Sudbury Districts	Meyer, G., Cosec, M., Grabowski, G.P.B., Guindon, D.L., Chaloux, E.C. and Charette, M.	Ontario Geological Survey, Open File Report 6007, 2000.
Upper Vermilion River Watershed: Stream Sediment, Outwash, Till and Esker Sediment Sampling Survey	Barnett, P.J.	Ontario Geological Survey, Open File Report 6002, 2000.
Report of Activities, 1999 Resident Geologist Program. Timmins Regional Resident Geologist Report: Timmins and Sault Ste. Marie Districts	Atkinson, B.T., Hailstone, M.H., Ravnaas, C.B., Wilson, A.C., Draper, D.M., Hope, P., Morra, P.M. and Beauchamp, S.A.	Ontario Geological Survey, Open File Report 6006, 2000.
Kimberlites of the Lake Timiskaming Structural Zone: Supplement	Sage, R.P.	Ontario Geological Survey, Open File Report 6018, 2000.
Geology, Metamorphism and Geochemistry of Rocks of the Southern and Grenville Provinces in the Vicinity of the Grenville Front, Timmins Creek Area, near Sudbury, Ontario	Murphy, E.I.	Ontario Geological Survey, Open File Report 6041, 2001.
Precambrian Geology of the Timmins Creek Area, Street Township	Murphy, E.I.	Ontario Geological Survey, Preliminary Map P.3428, scale 1:4 000, 2001
Geochemical Response of Surficial Media, North and East Ranges, Sudbury Basin	Bajc, A.F. and Hall G.E.M.	Ontario Geological Survey, Open File Report 6033, 2001.
Kimberlite Indicator Minerals from Till Samples in the River Valley - Verner Area, Northeastern Ontario	Tardiff, N.P. and Crabtree, D.C.	Ontario Geological Survey, Open File Report 6040, 2001.
Summary of Field Work and Other Activities 2000	Ayer, J.A., Baker, C.L., Kelly, R.I., Parker, J.R., Stott, G.M. and Thurston, P.C.	Ontario Geological Survey, Open File Report 6032, 2001.

In addition, the office often receives copies of The Globe and Mail, Canadian Mining Journal, CIM Bulletin, The Northern Miner, Nickel, Economic Geology and the Society of Economic Geologists Newsletter.

Table 6. Mineral deposits not being mined in the Sudbury District in 2000.

Abbreviations

AF.....Assessment Files
CMH.....Canadian Mines Handbook
GR.....Geological Report
MDC.....Mineral Deposit Circular
MDIR.....Mineral Deposit Inventory record
MLS.....Mining Lands, Sudbury
MR.....Mining Recorder
NM.....The Northern Miner
OFR.....Open File Report
PC.....Personal Communication

Deposit Name/NTS	Commodity	Tonnage-Grade Estimates and/or Dimensions	Ownership References	Reserve References	Status
Angus deposit (MDIR 31L14SW00014)	Ti, Fe	141 000 000 T @34.58% Fe, 15.64% TiO2 to 1000 feet deep	Titan Iron Mine Ltd.	AF Angus Twp.	Inactive patents
Bissett Creek deposit (MDIR 31L01SE00002)	flake graphite	26 038 000 T @ 1.86% flake graphite; 4744 000T @ 2.99% graphite	North Coast Industries Ltd.	AF Maria Twp.	Active staked claims
Brazeau Prospect (MDIR 31L02NE0010)	Va, Ti, Fe, (garnet)	110 000T @0.76% V_2O_5, 7.9% TiO_2, 35.2% Fe for two lenses to 100 ft.; 950 000 T for 6 lenses to 100 ft.	A. Clark	MRC 11	Active
Burwash Lake Prospect (MDIR 41P02SW00006)	Fe	15 possible pit areas outlined containing indicated or inferred reserves of 450,000 tons per vert. foot, aver. 20.7 % Fe. Potential tonnage est. @ 100 million tons. Preliminary concentration tests – concentrate grading 68.2% Fe, 5.0% SiO_2 with recovery of 93%	Ownership unknown	MRC 11	Inactive
Butler (Crocan Lake) prospect (MDIR 31L11SE00012)	Kyanite	50 million tons @13-17% kyanite	Kyanite Mining Corporation	AF Butler Twp.	Active leases
Butler Vermiculite deposit (MDIR 31L11SE00003)	Vermiculite	"A" zone: 144 000T @ 50-90% vermiculite	Ownership uncertain	n/a	Active
Cummings Lake Prospect (MDIR 41I16NE00036)	Fe	327.9 million tons @ 26.9% soluable Fe total	Rio Algom Ltd.	MRC 11	Inactive, underground exploration and bulk sampling
Errington/Vermilion Mines (MDIR 41I11SW00006)	Zn, Cu, Pb	4.4 million tons @ 1.3 3% Cu, 1%Pb, 4%Zn; 9 million tons @ 1.14%Cu, 1%Pb, 3.8%Zn (drilling by Falconbridge Ltd. has increased these figures)	Falconbridge Limited,	MRC 12	Inactive, past producer

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Deposit Name/NTS	Commodity	Tonnage-Grade Estimates and/or Dimensions	Ownership References	Reserve References	Status
Falcon Gold (MDIR 41I10SE00003)	Au	Estimate 60 000 tons @0.23 oz/Au ton	Pentland Firth Ventures Ltd.	E. Stringer, prospector, PC 1995	Inactive, underground development 1900's
Fostung (Texas) (MDIR 41I04NE00036)	W, Mo	F33-10 zone, 100 000 tonnes/vertical m @ 0.214% WO_4 with 81,200 tonnes/vertical m @ 0.23% WO_4 and 0.016 % MoS_2	Breakwater Resources Limited	Ginn, R. M. and Beechan, A. W., CIM Bulletin, V. 77, No. 863, p. 60, 1984	Inactive, extensive work by Sulpetro Minerals Limited in late 1970's, early 1980's
Geneva Lake Mine (MDIR 41I13SE00002)	Cu, Pb,Zn (Ag, Au)	170 000 T @ 11% Zn. (Small production - 80 588 tons high grade ore)	Natural Resource Holding & Consulting Inc.	Properties with Mineral Inventories, Ontario, Canada, February 1996	Inactive, past-producer 1940s
Parkin Calcite (MDIR 41I15SW00041)	$CaCO_3$	147 460 probable and possible tons of "good, fair and poor" calcite	J. Brady	AF Parkin SP025	Inactive
Sudbury Shakespeare (MDIR 41I05SW00076)	Ni, Cu, PGE	Estimated 2.1 million tons @ 0.36%Ni, 0.42%Cu, , 0.44g/t Pd, 0.40g/t Pt, 0.22g/t Au	Falconbridge Limited, Ursa Major Minerals Inc.	Ursa Major Min. (company report)	Inactive
Spanish River Mine (MDIR 41I05SW00014)	Cu, PGMs	Estimate 0.9 million tons @ 0.5% Cu + PGM	D&H Consulting Services Inc.	AF	Inactive, past-producer 1969-70. 14,500 T stockpile on surface
Stralak Deposit (MDIR 41I13SE00044)	Zn, Cu, Pb (Ag)	800 000 tons @ 4% Zn, 0.3%Cu, 0.5%Pb, 2.0 opT Ag	Stralak Resources Inc.	AF	Inactive, last active 1993, diamond drilling
Wikwemikong (MDIR 41H13SE00012)	dolomite	Undetermined but possibly significant	Wikwemikong Unceded Indian Reserve	n/a	Inactive, some widely spaced diamond drill holes. Feasibility and several reports

OGS ACTIVITIES AND RESEARCH BY OTHER ORGANIZATIONS

The geology of the Sudbury Structure, which includes the Sudbury Igneous Complex and its mineral deposits attracts research interest worldwide, even after over 100 years of commercial production and countless treatises. Efforts are continually being made by the Sudbury District Geologist office to update an index of geoscientific papers specifically focused on the enigmatic Sudbury Structure.

Many geoscience research organizations and universities in the United States and Canada have ongoing research activities in the area. A few of note are mentioned in the following paragraphs. The Sudbury District Geologist office is an invaluable starting point for past research, present activities, and logistics when contemplating work in the area.

S.E. Allan of the Sedimentary Geoscience Section of the Ontario Geological Survey completed regional modern alluvium sampling in the Temagami-Marten River area, a portion of which falls within the Sudbury Resident Geologist District. The main focus of this sampling program is to determine the distribution of kimberlite indicator minerals (KIM's). The distribution of magmatic sulphide indicator minerals was also investigated as part of the study.

A. Bajc of the Sedimentary Geoscience Section of the Ontario Geological Survey and G. Hall of the Geological Survey of Canada completed a multi-year quaternary geology and drift geochemistry study along the north and east ranges of the Sudbury Basin to evaluate the effectiveness of surficial geochemistry for mineral exploration in the Sudbury mining camp and to provide baseline geochemical data for environmental applications.

M. Easton of the Precambrian Geoscience Section of the Ontario Geological Survey continued his study of the River Valley area with emphasis on crustal variations and large-scale tectonic controls on rare-metal and platinum-group element mineralization in the Southern and Grenville provinces.

S. Jobin-Bevans continued working on his doctoral thesis at the University of Western Ontario in co-operation with Laurentian University. His thesis will examine the potential for economic concentrations of Ni-Cu-PGE hosted in Nipissing gabbro. Geological mapping, as well as lithogeochemical sampling of specific occurrences will be completed. One of the aims of this study is to develop a useful exploration model for gabbroic ores that may be used by prospectors and junior exploration companies.

N. Tardif of the Sedimentary Geoscience Section of the Ontario Geological Survey continued a regional till sampling study in the River Valley area to determine the occurrence and abundance of kimberlite indicator minerals (KIMs).

R. Campbell, Laurentian University, is studying the geology and origin of the Sudbury Breccia.

M. Deslauriers, Laurentian University, is studying the paragenesis and metallogenesis of footwall copper mineralization at the McCreedy East 153 Deep Copper Zone.

G. Dessureau, Laurentian University, is conducting a detailed geochemical stratigraphic analysis of the mafic and felsic norites of the Sudbury Igneous Complex.

J. Hrominchuk, Laurentian University, is studying the geology, stratigraphy, and copper-platinum group element mineralization of the River Valley intrusion in Dana and Crerar townships, north of the Sturgeon River.

M. Huminicki, Laurentian University, is studying the geology, mineralogy and geochemistry of the Kelly Lake Ni-Cu-PGE deposit.

A. Lauzon, Laurentian University, is studying the relationship between geologic environment and recoverable reserves of Ni-Cu-PGE deposits within the Sudbury Structure.

A. Lock, Laurentian University, is modelling Ni-Cu-PGE in Kelly Lake and speciation of sediments.

G. Moure, Laurentian University, continued the study of the mineralogy and petrology of inclusions within the Copper Cliff Offset. This may have implications to the localization of Ni-Cu-PGE ore within the Sudbury Igneous Complex, as well as other Proterozoic, differentiated mafic intrusive complexes.

M. Napoli, Laurentian University, continued with his study of the geology of the Wanapitei Complex.

J. Richard, Laurentian University, is working on the stratigraphy of nutrient and metal contamination in the bottom sediments of Kelly and Robinson lakes.

D. Rogers, Laurentian University, is studying the metal enrichment within the Onwatin Member of the Whitewater Group.

R. Turmel, Laurentian University, is looking at PGE mineralized environments in the East Bull area.

Under the direction of J. Spray of the University of New Brunswick Sudbury Research Program, A. Murphy, M. Tuchscherer, and M. Boast conducted research on the Sudbury Igneous Complex.

ACKNOWLEDGEMENTS

The authors wish to thank S. Jobin-Bevans, consulting geologist for Pacific Northwest Capital Corporation for his contribution summarizing the company's exploration activities in 2000.

T. Watkins and H. Brown, both of Publication Services, MNDM, provided cartographic and editorial assistance respectively. J.C. Ireland, Northeast Regional Manager, Resident Geologist Program, Ontario Geological Survey, MNDM, provided editorial guidance.

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Ontario

Ontario Geological Survey
Regional Resident Geologist Program

Northeast Regional Land Use Geologist District – 2000

by

R. Debicki and G. Yule

2001

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REGIONAL LAND USE GEOLOGIST – NORTHEAST

Ruth Debicki[1] and Gord Yule[2]

[1] Land Use Policy and Planning Coordinator

[2] Regional Land Use Geologist – Northeast

INTRODUCTION

Over the past several years, the Government of Ontario has re-engineered the way it delivers services to the people of Ontario. The changes that may be most familiar to the exploration community are the centralization of the Mining Recorders in the province and the posting of claim maps and claims information on the Ministry's website. At the same time, other changes have happened in other ministries throughout government. Some of them have had implications for the Resident Geologist Program.

As a result of these modifications, staff of the Resident Geologist Program have found themselves dealing with new clients in government, agencies, and non-governmental organizations, and delivering services that they had not delivered in past. These new services are important. Many of them relate to land use planning matters that are of interest to, or may directly affect, prospectors and developers. Many of them require knowledge and expertise that are outside the traditional knowledge and experience of professional geoscientists.

Some of these services relate to managing Crown land. They include working with the Ministry of Natural Resources to implement *Ontario's Living Legacy* which involves the establishment of 378 new parks or park expansions and conservation reserves across Ontario, and defining areas of "provincially significant mineral potential" within these new protected areas where mineral exploration will be allowed to proceed. They include administering work permits required for exploration activity in defined environmentally sensitive areas where natural heritage values need special protection, and ensuring that the mineral sector's interests are considered and accommodated in other land use planning initiatives such as forest management plans and the sale and transfer of Crown land.

Other services relate to municipal planning. They include working with Ministry of Municipal Affairs and Housing to review new municipal Official Plans, Official Plan Amendments, and consents (lot severances). Changes made to the *Planning Act* in 1996 recognize the interests of the mineral sector and the importance of protecting areas of high mineral potential from incompatible uses, and require that these considerations be factored into the municipal planning process. These considerations are important in the north where municipalities encompass huge tracts of land, including large areas of base and precious metals potential. They are also important in the south where industrial minerals are essential to the current, rapid expansion of existing communities and to the development of new ones.

In addition, there are emerging requirements for staff of the Resident Geologist Program to help ensure that access to the land base remains open to the exploration community, and to work with First Nations and the mineral sector to develop shared understanding of the other's rights, obligations, and interests in mineral exploration and development on Crown land.

These new and emerging needs were resulting in Resident Geologist Program staff having to divert their energies away from the traditional client services provided to the exploration and development community to attend to land use planning matters. On average, about 20 per cent of staff time was being

directed toward such work – although in Southern Ontario, land use planning consumed as much as 75 per cent of staff time. The end result was less time being available for delivering the level of traditional program services to which mineral industry clients had become accustomed.

To address these converging concerns, three new positions were created and the new "Regional Land Use Geologists" were hired in the autumn of 2000 to alleviate some of the pressures that impacted on the program. These new positions combine geoscience and mineral sector expertise with an understanding of land use legislation, regulations and issues.

Regional Land Use Geologists

Abraham Drost, the Regional Land Use Geologist based in Thunder Bay, is responsible for matters related to land use in the Red Lake, Kenora, Thunder Bay North and Thunder Bay South Resident Geologist districts. He has an M.Sc. degree in geology and a Certificate in Environmental Assessment, and has studied real estate law. Abraham has 16 years' experience in mineral exploration and development and was involved in the discovery of the past-producing Golden Patricia gold mine in northwestern Ontario. He has served on the executive of prospectors' organizations in Thunder Bay and Timmins.

Gord Yule, the Regional Land Use Geologist based in Timmins, is responsible for matters related to land use in the Timmins, Kirkland Lake, and Sault Ste. Marie Resident Geologist districts, plus those portions of the Sudbury Resident Geologist District north of the French River. He has a B.Sc. degree in geology, and 25 years' experience in mineral exploration, during which time he has been involved in the discovery of eight deposits in northeastern Ontario, including five past and present producers.

Dave Rowell, the Regional Land Use Geologist based in Sudbury, is responsible for those portions of the Sudbury Resident Geologist District south of the French River, including Manitoulin Island, plus the Southwestern Ontario and Southeastern Ontario Districts. Dave has an M.Sc. degree in Physical Geography, and 18 years' experience in mapping surficial geology and defining and managing aggregate and industrial mineral resources in the private sector and with the Government of Ontario.

The boundaries of the Regional Land Use Geologist Districts are shown on the map included in the preface to this report.

The result of these appointments, which mark the first significant increase in Resident Geologist Program staff in many years, will be twofold. There will be a reduction of the workload relating to land use issues for other Resident Geologist Program staff, allowing them to concentrate more fully on "traditional" services including:

- maintaining and providing access to assessment files, the drill core library system and other geoscience databases;
- providing information and expert advise on local geology and its mineral endowment;
- conducting client property visits and geology field trips; and
- monitoring exploration activity and generating new recommendations for exploration.

The Regional Land Use Geologists will focus their attention on "emerging" services including:

- providing mineral-related information in support of Crown land planning;

- protecting mineral resources and operations from "sterilization", and people and property from mining and natural hazards during municipal planning; and
- helping explorationists and First Nations understand each other's interests, activities and obligations in mineral exploration and development.

The Resident Geologist Program has created these new staff positions to ensure that knowledgeable service is provided regarding these and other land use issues, since finding solutions to these matters is vital to the health and sustainability of the mineral sector. Liaison with and input from mineral sector representatives, including local prospectors and their associations, will form an essential contribution to the successful delivery of land use planning services that support mineral exploration and development.

REGIONAL LAND USE GEOLOGIST ACTIVITIES

Crown Land Planning

The Ministry of Natural Resources manages Crown land in Ontario through the *Public Lands Act*, the *Parks Act*, the *Aggregate Resources Act*, the *Crown Forest Sustainability Act*, the *Conservation Authorities Act*, the *Oil, Gas and Salt Resources Act*, and other acts. The Ministry of Northern Development and Mines also contributes to Crown land management in the province through the *Mining Act*.

The Regional Land Use Geologists are working closely with Ministry of Natural Resources and their partners in several key areas. They are helping implement the *Ontario's Living Legacy* land use strategy by assisting in the regulation process for the new parks and conservation reserves, and in the development and application of criteria to allow "controlled exploration" in areas within those protected sites where there is provincially significant mineral potential.

They are helping to develop guidelines for the nine "Signature Sites" identified through the *Ontario's Living Legacy* land use strategy; reviewing management plans for both existing and new protected areas; and contributing to other land use planning and policy matters such as the Niagara Escarpment Plan.

The Regional Land Use Geologists are also working to help the mineral exploration and development community understand the forest management planning process, and to know how and when prospectors and developers should participate to ensure that their interests are considered. Forest management plans set the framework for activities in forest units for twenty-year spans, and establish the schedule and locations for access routes during that time. In addition, the Regional Land Use Geologists are working with the Ministry of Natural Resources to establish strategies for allowing the mineral sector to continue to access existing forest access roads.

Development on Private Land

The Ministry of Municipal Affairs and Housing manages planning on private land in Ontario through the *Planning Act*, the *Municipal Act*, and other legislation. Through their one-window approach, MNDM contributes to municipal planning by providing mineral-related technical information regarding private land to municipal governments, provides advice on planning matters that may affect mineral exploration and development, and comments on areas of mineral potential or mining-related hazards.

In conjunction with other program staff, the Regional Land Use Geologists review and comment on draft municipal Official Plans and Official Plan Amendments along with other planning matters including subdivision plans and consents (lot severances) where the approval authority lies with the Province of Ontario. They also provide training sessions and reference materials to representatives of the Ministry of Municipal Affairs and Housing and to municipal planners representing communities across the province. In addition, they may be called upon to serve as "expert witnesses" in cases where planning decisions are being reviewed by the Ontario Municipal Board or other tribunals.

First Nation Interests

First Nation communities across Ontario are looking for new economic opportunities. As well, they are asserting their Aboriginal rights and claiming higher levels of involvement and control concerning economic activity on Crown land within their traditional areas. As a result of a lack of clarity regarding Aboriginal rights on one hand, and some First Nations' lack of familiarity with the "mining sequence" on the other, conflicts have arisen between some explorationists and developers and certain First Nations.

The Regional Land Use Geologists are working with the mineral sector and with representatives of other government ministries and First Nation communities to establish mutual understanding of the actions, implications, and obligations of mineral exploration and development workers, and to facilitate their activities on traditional lands. This work includes sharing information concerning Aboriginal rights and the related obligations of the mineral sector, and discussing the stages of the mining sequence and resulting business opportunities with First Nation community members. The Regional Land Use Geologists are also helping resolve certain land claims in their respective areas.

REGIONAL DISTINCTIONS

It is worthwhile to note that there are significant differences between the critical land-use planning concerns in different parts of Ontario. Northwestern Ontario can be considered the province's "exploration frontier" while northeastern Ontario is an area of more mature exploration and established mining. Southern Ontario is more populated and mineral sector interests are concentrated on a growing industrial mineral and aggregate industry. Each region has its distinct assemblage of planning-related issues.

Northwestern Ontario, the province's "exploration frontier", is characterized by large tracts of open Crown land. Forest management and logging activities are regionally important and First Nation communities throughout the region are expressing their interest in Aboriginal rights. The area has limited infrastructure and access to remote areas, and is considered under-represented in terms of protected areas.

Northeastern Ontario has a high density of mining land tenure and numerous producing and past-producing mines. Forest management and logging activities are also regionally important and there are local to widespread Aboriginal issues. The area is also considered to be under-represented in terms of protected areas, but has more urbanization, infrastructure and private land holdings than northwestern Ontario, making it more difficult to identify unencumbered lands that may be set aside to protect and preserve natural heritage values.

Southern Ontario is an area with much higher population density and a relatively small amount of Crown land, and a greater focus on a growing industrial mineral and aggregate industry. There is major

urbanization and well-developed infrastructure, however the high population density leads to greater opposition to many mineral-related activities and developments.

NORTHEASTERN ONTARIO ACTIVITIES

Introduction

There are at least 12 major provincial legislative acts, with accompanying regulations, guidelines and policies developed by several provincial ministries that relate to land use in Ontario. Some apply to Crown land while others apply to private land. The Regional Land Use Geologist combines geoscientific, mineral exploration and development expertise with an understanding of provincial legislation, regulations, policies and land use issues in order to optimize Ontario's land base for sustainable, safe and environmentally responsible mineral resource development.

The Northeast Regional Land Use Geologist coordinates this mandate with other provincial ministries, municipalities, land-use interest groups and First Nations in the northeast to address matters including implementing the *Ontario's Living Legacy* land use strategy, preparing forest management plans, and monitoring development on private land.

Ontario's Living Legacy Land Use Strategy

The *Ontario's Living Legacy* (OLL) land use strategy is the province's Crown land management initiative to provide representative protected areas within a defined expanse of the province referred to as the "area of the undertaking" (i.e. principally all of the shield area south of latitude 51 degrees). Another principal tenet of the OLL land use strategy is to strengthen the economic health of the area.

The *Ontario's Living Legacy* land use strategy identified a total of 378 new provincial parks or parks expansions and conservation reserves within the area of the undertaking, of which 136 occur within the northeast region and have been reviewed by the Northeast Regional Land Use Geologist. Of these 136 sites, the Ministry of Natural Resources is preparing 38 for regulation in the spring of 2001. The Regional Land Use Geologist worked with other Resident Geologist Program staff to help identify and minimize mining land tenure conflicts in the new protected areas. During preparation of the identified sites for regulation, the Regional Land Use Geologist also discussed access to mining interests within the sites, water crossings in waterway parks, and the definition and location of park boundaries.

The *Ontario's Living Legacy* land use strategy allows for controlled mineral exploration in specified areas within new parks and conservation reserves identified as having "provincially significant mineral potential" (PSMP). If a mineral discovery is made in such an area and the site develops into an advanced exploration project or a new mine, the area of the discovery or proposed disturbance will be de-regulated and an appropriate, alternative area of equal size and natural heritage value will be regulated as protected area. Upon site rehabilitation at the completion of the exploration/mining activity the deregulated land will be returned to park status.

The Regional Land Use Geologists have contributed to a committee of industry and government representatives assembled to define the criteria for "provincially significant mineral potential" and a process for ranking the potential of areas of interest. At the time of writing, the process for defining PSMP is currently close to completion. It is envisioned that this mineral potential evaluation process will

be incorporated into future land use planning activities and initiatives for both Crown and private lands in the province.

Forest Management Plans

There are 63 Sustainable Forest License (SFL) areas throughout the province. Each SFL area requires a Forest Management Plan to guide all harvesting activities within the subject Crown forests. Forestry operations include forest access road construction, maintenance and abandonment; stream crossings; timber harvesting and silvicultural practices. The plan must have regard for all other resource values as well as social (cultural, heritage, and tourism) and ecological (fish, wildlife, environmental) values.

In the northeast region, nine Forest Management Plans are currently being prepared for approval in 2001. During the past year, eight such plans were developed for approval and implementation. In conjunction with colleagues, the Northeast Regional Land Use Geologist is working to promote mineral resource values to Forest Management Plan authors and to highlight the opportunities available to the mining community through the Forest Management Plan development process.

Other Activities on Crown Land

The concept of "controlled exploration" has been proposed as an option in several situations to ensure that claim staking and mineral exploration activities are allowed to continue within protected, environmentally sensitive areas. To date, the concept has been applied to five areas within the Temagami area in accordance with the Temagami Land Use Plan. Work permits are required for some exploration and development activities within these areas, subject to regulations defined under the *Public Lands Act* - Reg.349/98, and in the *Mining Act* - Reg.356/98, s.1. Work permits are not required for similar activities in other areas. One application for a work permit for proposed work within the Temagami Skyline Reserve was reviewed and granted, subject to conditions under which the work may be performed.

Development on Private Land

Development on private land is largely subject to the control of the Ministry of Municipal Affairs and Housing (MMAH). The Northeast Regional Land Use Geologist works closely with MMAH to ensure that the clauses in the Provincial Policy Statement of the *Planning Act* relating to mineral resources, mineral extraction, and mining-related hazards are given due consideration when planning decisions are made.

In the northeast, the Regional Land Use Geologist reviewed 19 draft Official Plans and two Official Plan amendments for various municipalities. In addition, ten consents (lot severances) and five development projects were reviewed during the year. The Northeast Regional Land Use Geologist is also assisting MMAH in their review of the effectiveness of the five-year-old Provincial Policy Statements to ensure that municipalities are making better planning decisions.

First Nation Interests

On an ongoing basis, Ministry of Northern Development and Mines staff, including the Northeast Regional Land Use Geologist, are meeting with First Nation communities who are interested in developing knowledge about the mining sequence, exploration and mining activities, and the impacts and benefits that may flow from such activities. Of the 37 First Nation communities located in the northeast, the communities of Peawanuk (Winisk), New Post, Wahgoshig, and Temagami First Nations have been contacted to date and provided with background information. The meetings aim to promote dialogue and understanding between First Nation communities and the minerals industry, as well as to help First Nation communities make informed decisions concerning potential mineral resource development on traditional lands and to recognize economic development opportunities.

The Regional Land Use Geologist is also working with several MNDM colleagues and representatives of other provincial ministries to help reach a settlement with the Temagami First Nation and the Teme-Augama Anishnabai concerning their land claim. A "Framework Agreement" signed June 21, 2000 provides for a thirty-month process to guide the parties in negotiating a settlement to this long-standing issue. The Resident Geologist Program is providing technical support to the Ontario negotiating team through contributions from the Northeast Regional Land Use Geologist and the staff of the Kirkland Lake Resident Geologist office. Ministry staff are also involved in three Joint Working Committees comprised of staff from various Ontario ministries and representatives from the Aboriginal community and local municipality. Through monthly meetings and periodic information briefings, the Joint Working Committees are developing and sharing information about lands, economic development, and land-use and resource management to support the main negotiating table.

The Lands Committee is considering such matters as potential locations for a mainland community site and traditional family land sites; reviewing compatible uses of these lands; and potential forms of land tenure and their ramifications.

The Land Use and Resource Management Committee is developing an information base on land use and resource management processes between the Aboriginal community and other parties. This committee is working to identify traditional and compatible land uses to minimize and mitigate adverse impacts on environmental and cultural concerns of neighbouring land users.

The Economic Development Committee is identifying how proposed settlement funds can best be used to enhance Aboriginal self-reliance through economic development and to promote the local economic base for all stakeholders and the Aboriginal community as defined in Ontario's Aboriginal Policy Framework.

These committees support the process identified in the "Framework Agreement", wherein there will be an information gathering phase lasting 12 months; an issue identification and option development phase lasting six months; and a consensus building phase lasting 12 months which culminates in a final settlement.

Metric Conversion Table

Conversion from SI to Imperial			Conversion from Imperial to SI		
SI Unit	*Multiplied by*	*Gives*	*Imperial Unit*	*Multiplied by*	*Gives*
		LENGTH			
1 mm	0.039 37	inches	1 inch	**25.4**	mm
1 cm	0.393 70	inches	1 inch	**2.54**	cm
1 m	3.280 84	feet	1 foot	**0.304 8**	m
1 m	0.049 709	chains	1 chain	20.116 8	m
1 km	0.621 371	miles (statute)	1 mile (statute)	**1.609 344**	km
		AREA			
1 cm^2	0.155 0	square inches	1 square inch	**6.451 6**	cm^2
1 m^2	10.763 9	square feet	1 square foot	**0.092 903 04**	m^2
1 km^2	0.386 10	square miles	1 square mile	2.589 988	km^2
1 ha	2.471 054	acres	1 acre	0.404 685 6	ha
		VOLUME			
1 cm^3	0.061 023	cubic inches	1 cubic inch	**16.387 064**	cm^3
1 m^3	35.314 7	cubic feet	1 cubic foot	0.028 316 85	m^3
1 m^3	1.307 951	cubic yards	1 cubic yard	0.764 554 86	m^3
		CAPACITY			
1 L	1.759 755	pints	1 pint	0.568 261	L
1 L	0.879 877	quarts	1 quart	1.136 522	L
1 L	0.219 969	gallons	1 gallon	**4.546 090**	L
		MASS			
1 g	0.035 273 962	ounces (avdp)	1 ounce (avdp)	28.349 523	g
1 g	0.032 150 747	ounces (troy)	1 ounce (troy)	**31.103 476 8**	g
1 kg	2.204 622 6	pounds (avdp)	1 pound (avdp)	**0.453 592 37**	kg
1 kg	0.001 102 3	tons (short)	1 ton (short)	**907.184 74**	kg
1 t	1.102 311 3	tons (short)	1 ton (short)	**0.907 184 74**	t
1 kg	0.000 984 21	tons (long)	1 ton (long)	**1016.046 908 8**	kg
1 t	0.984 206 5	tons (long)	1 ton (long)	**1.016 046 90**	t
		CONCENTRATION			
1 g/t	0.029 166 6	ounce (troy)/ ton (short)	1 ounce (troy)/ ton (short)	34.285 714 2	g/t
1 g/t	0.583 333 33	pennyweights/ ton (short)	1 pennyweight/ ton (short)	1.714 285 7	g/t

OTHER USEFUL CONVERSION FACTORS

	Multiplied by	
1 ounce (troy) per ton (short)	31.103 477	grams per ton (short)
1 gram per ton (short)	0.032 151	ounces (troy) per ton (short)
1 ounce (troy) per ton (short)	20.0	pennyweights per ton (short)
1 pennyweight per ton (short)	0.05	ounces (troy) per ton (short)

Note: Conversion factors which are in bold type are exact. The conversion factors have been taken from or have been derived from factors given in the Metric Practice Guide for the Canadian Mining and Metallurgical Industries, published by the Mining Association of Canada in co-operation with the Coal Association of Canada.